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Notwithstanding Pharmacy's Service of the Past and Present It Is Still in an Early Stage of Development—Progress Is Being Made in Its Practice.

Vol. XIX, No. 8 AUGUST, 1930

JOURNAL

OF THE

AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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THE 79th ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN MIAMI, FLA., DATE TO BE NAMED.

The 1931 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conferences of Pharmaceutical Association Secretaries and of Pharmaceutical Law Enforcement Officials will also be held at Miami, same time and place.

For Association Roster and Roster of the Boards of Pharmacy, of Officers of Pharmaceutical Associations, Local Branches, see pages x, xii, xiv, etc.

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LOUIS HÉBERT—APOTHECARY.

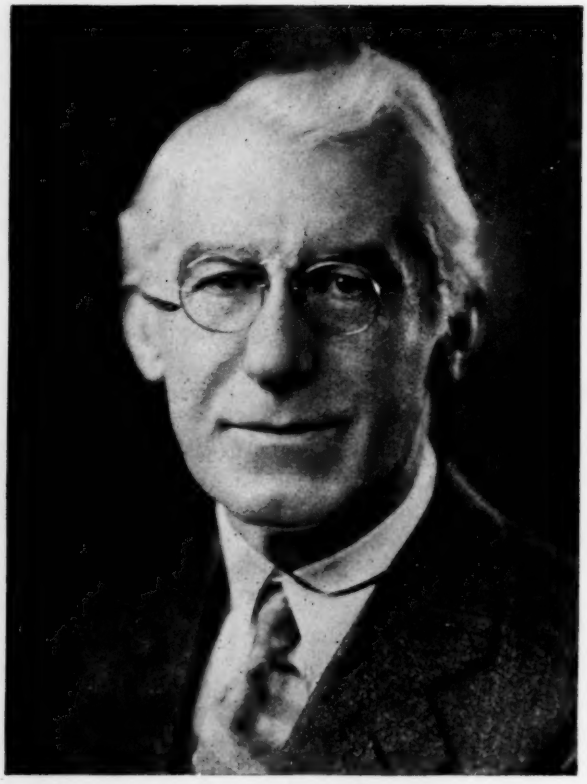
AS part of the ceremonials of the Canadian Pharmaceutical Association, held at Halifax, August 4th to 7th, a tablet to the memory of Louis Hébert, Apothecary, was unveiled at Annapolis Royal. The interest of the occasion was enhanced by the presence of Rev. Abbe Couilliard-Desprey, St. Hyacinthe, Que.—a descendant of the apothecary. There were also present His Honor the Lieutenant-Governor, the Premier, the Consul General of France, His

HÉBERT MONUMENT IN CITY OF QUEBEC.

Honor Judge Crowe of the Historic Sites and Monuments Board; former president of the A. PH. A., Theodore J. Bradley, represented the AMERICAN PHARMACEUTICAL ASSOCIATION.

Mr. and Mrs. J. C. Peacock favored us with a post-card view of the Louis Hébert monument in Quebec which they described in an article printed in the February JOURNAL, A. PH. A. for 1929, page 155. The inscription on the monument reads (translated from the French):

"Louis Hébert, an apothecary of Paris, who explored Acadia in 1604 with Messrs. de Monts and Poutrincourt, and lived there from 1606 to 1613. He settled in Quebec in 1617 with his family and died January 25, 1627."



JULIUS W. STURMER.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XIX AUGUST, 1930 No. 8

THE PRESIDENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY.

In speaking of the pharmacy curriculum before the American Association of Colleges of Pharmacy, Dean Sturmer said that "a fair measure of general studies must be included, not only for the good of our students but also for the good of pharmacy; for no calling can be greater and finer than its personnel." In the words quoted, he expresses, in a practical way, his desire for the advancement and uplift of pharmacy; it is that quality of reasoning which impresses those who come in contact with President Sturmer; in his relation with others he is always considerate and cordial.

Julius William Sturmer, the president of the American Association of Colleges of Pharmacy, is a native of the Empire State, but as a youth he lived in Fort Wayne, Ind.; later, he attended Purdue University, and graduated in 1891. He pursued a modified pharmacy course, including work in the School of Science, which was continued after graduation. He was made assistant and in due course instructor, and professor of pharmacy in 1894. In 1911, he received the degree of Doctor of Pharmacy, in course, from the University of Buffalo for original work upon mixed solvents. The following year, he was elected a member of the faculty of the Medico-Chirurgical College, of Philadelphia, and to the deanship of its pharmacy department, professor of organic chemistry in both pharmacy and medical departments.

He was one of the eight professors transferred to the University of Pennsylvania, when in 1916, the latter absorbed the "Medico-Chi;" during the same year, in the merger with the Philadelphia College of Pharmacy and Science, he became professor of pharmaceutical chemistry; in 1918, he was elected dean of Post Graduate and Special Courses and, in 1920, Dean of Science. He is author of quite a number of scientific and educational articles and of textbooks on Pharmaceutical Arithmetic and Pharmaceutical Latin.

Professor Sturmer joined the AMERICAN PHARMACEUTICAL ASSOCIATION in 1901, and at this meeting he also attended the Conference of Pharmaceutical Faculties, as representative of Purdue University School of Pharmacy.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase St., BALTIMORE, MD.

THE UNJUSTIFIABLE ARMY SYSTEM OF DISPENSING.

THE conditions surrounding the deaths of William Cornett and Frank Canki are such as to demand a searching, competent and impartial investigation. William Cornett and Frank Canki were children of enlisted men serving in the United States Army at Fort Leavenworth, Kansas.[1] In April the children became ill of measles and were treated by army physicians. A prescription was written for atropine sulphate. The prescription was dispensed by an army employee in an army dispensary. The prescription was improperly filled. In an hour both children were dead

The tragic circumstances aroused an intense interest throughout Kansas. The newspapers gave much space to the case. The public became indignant and severely critical of those in authority. It became known that there was a vast difference between the Kansas and army systems. In Kansas, a person must satisfy stringent state requirements before he is permitted to practice pharmacy in the compounding of physicians' prescriptions and in the dispensing of drugs and poisons. It became known that the army does not consider such requirements necessary for persons who deal with deadly poisons. The public learned that frequently the practice of pharmacy in the army is officially entrusted to persons not having the necessary competency and skill. The public sensed the fundamental idea that the official system was itself responsible for the double tragedy.

In due course Corporal Ralph E. Hawkins, who had dispensed the prescription, was tried by court-martial and acquitted. Military autocracy had at least gone through the form! The system had spoken for the system and given it a clean bill! This military fiat should not stand in the way of a full and complete investigation. It is a fact that the hospital corps at Fort Leavenworth did not include a registered or graduate pharmacist. It is quite obvious that Corporal Hawkins was not a competent person to assume the responsibility of prescription pharmacist. He had had no training and no experience such as would qualify him for the exacting task of dispensing a deadly poison to sick children. Corporal Hawkins appears to have been no more than a helper who had done odd jobs around the dispensary. He was a part of an arbitrary military system which ran true to form! The whole case demands an investigation by competent and fair-minded people who are concerned only with the facts. The court martial represented the authority which created the system under which Hawkins was controlled. There should be an investigation by persons not interested in the verdict.

The Journal-World, Lawrence, Kansas, in speaking through its editorial columns says, "The children's deaths were traceable directly to the lack of graduate pharmacists in the army medical organization. A member of the medical department made an error in compounding a prescription, which a graduate pharmacist would not have made, with fatal results in two families. A court martial

[1] See pages following "Committee Reports" this issue of the JOURNAL.

has established that as the salient fact in the case.....The prescription was properly written but wrongly filled." *The Kansas City Star* says Hawkins "is not a registered pharmacist" and refers to the mistake in compounding the prescription as a "tragic error." *The El Dorado Times* says, "And so we have what appears to be, on the face of it, a glaring defect in the handling of medicines in the United States Army Medical Service....This incident happened in peace times. It is rather disagreeable to think of the mistakes that may have happened from the same cause during wartime, when haste in dispensing medicine was necessary....Surely the lives of soldiers and of their dependents are entitled to be safeguarded against ignorance and inexperience. The army certainly needs the services of pharmacists who know their business as well as citizens in more peaceful occupation." Upon his acquittal by the court martial, Hawkins was, according to reports by the Associated Press, returned to prescription work in the hospital!

It is true that the practice of pharmacy, including the compounding of physicians' prescriptions and the dispensing of poisons and potent drugs is such an exacting profession that errors do occur at the hands of the trained and qualified. Such errors are, however, of such rare occurrence as to be news items of the first importance. In this phase of the subject, perhaps, lies the most convincing reason for employing the most competent and skilful. If dangerous or tragic consequences are occasionally met with in civil life, where every possible legal safeguard is placed around the practice of pharmacy, how much more likely are they in the army where these safeguards are for the most part ignored!

The facts which have become public are sufficient to arouse the country to the conditions which surround the practice of pharmacy in the United States Army. The facts fully support the contention of the AMERICAN PHARMACEUTICAL ASSOCIATION and the entire drug industry that there should be established a Pharmaceutical Corps in the army to take over and administer this important and responsible professional service. Public opinion should demand that the conditions surrounding the practice of pharmacy in the United States Army cease to be a danger to those in the service and their dependents.—ROBERT L. SWAIN, *Chairman of Committee on Pharmacy Corps in U. S. Army.*

THE APPLICATION OF RIGHT PRINCIPLES IS ESSENTIAL TO EFFECT RIGHT RELATIONS.

IN the widening field of medical science coöperation of the related professions is essential to the extent of a belief of the members of one in the importance of those of the other. Individuals of different professions may work together, but each class is best qualified to render service in the department for which the individuals have been trained by experience and education. It is almost needless to say here that pharmacists are enabled to understand what they see and do, because of adequate education and underlying professional attainments—a little knowledge may become a source of danger, nowhere more than in the handling of drugs.

At the formal opening of Johns Hopkins (1876) Thomas H. Huxley delivered an address on "University Education." We are taking the liberty of quoting the following which applies to medical and pharmaceutical education:

"Again, Materia Medica, so far as it is a knowledge of drugs, is the business of the druggist. In all other callings the necessity of the division of labor is fully recognized, and it is absurd to require of the medical man that he should avail himself of the special knowledge of those whose business it is to deal in the drugs which he uses. . . ."

"All knowledge is good. It is impossible to say that any fragment of knowledge, however insignificant or remote from one's ordinary pursuits, may not some day be turned to account. But in medical education, above all things, it is to be recollected that, in order to know a little well, one must be content to be ignorant of a great deal."

The striving for position is accompanied by danger, unless he who desires to obtain it has a humanitarian object or service in view, and has first prepared himself to fulfill, intelligently, duties it imposes. Nor is it right for those in authority to impose duties on those who are not qualified to discharge them. Members of a profession are so interdependent that every thought and action by an individual who ventures into its activities affects all to a greater or lesser degree; the individual is to some extent, whether he would or not, his brother's keeper; there are to-day many who fail to realize that wherever they are, whatever position they may hold, their work must be done well, or they will discredit others.

A purpose of this comment is to direct attention to the causes which led up to the error at Fort Leavenworth, in compounding a prescription containing atropine. "To err is human"—a pharmacy graduate may be so distracted and, as a result, make the same fatal error as an untrained pharmacist, but the latter is *constantly* in danger of making mistakes in compounding, because of lacking in knowledge and experience, and is very fortunate if he does not. The writer recalls mishaps in prescription-writing; also, a quiz at medical school when the dosage of hydrocyanic acid was asked for—the reply—"one teaspoonful." Later, when the young man wanted to correct his error—the quiz-master replied—"it is not necessary, for the patient is dead." All of this points to the necessity of constant watchfulness, that only qualified pharmacists should be entrusted with the dispensing of medicines; that it is not right to place an individual in charge of duties endangering life, who is not trained and experienced, and that close coöperation between the medical and pharmaceutical professions should obtain.

Pharmacy has contributed largely to the progress of medicine; pharmacy schools require that the preliminary education of the matriculants be not less than that of high school and the students, thereafter, devote at least three years to pharmacy college work before graduation, followed by a State Board of Pharmacy examination. In 1932 another year will be added to the pharmacy course. Mention of this is made for the purpose of stressing that there is no reason whatever for declining professional recognition to pharmacists, and that the Government should be as exacting as States in requirements for pharmacists in its Service.

There are sufficient reasons for calling attention to the necessity for having pharmacists in charge of the pharmacies in all hospitals, and one of the essential requirements for a standard hospital should be that a qualified pharmacist is in charge of its pharmacy. The public has a right to expect and to investigate the coöperation of the professions, and to determine whether they are giving it the best service and protection possible.

VISITS TO STATE ASSOCIATION MEETINGS BY THE PRESIDENT OF THE A. PH. A.

BY H. C. CHRISTENSEN.

Now that I have returned from a six weeks' trip throughout the West, a report to the pharmacists of the country giving at least some of my observations, reactions and conclusions with regard to the activities and problems of pharmacy is in order. As president of the AMERICAN PHARMACEUTICAL ASSOCIATION, I extended greetings to the state pharmaceutical conventions, and took up Board matters with officials and members of Boards of Pharmacy in a number of states in the interest of the National Association of Boards of Pharmacy. My itinerary included Colorado, Nebraska, Washington, Oregon, California, Nevada, Idaho and Utah, total mileage for the trip being approximately 10,000 miles.

All of the state meetings were well attended and had interesting and helpful programs. I was particularly impressed with the encouraging reports and the able and forceful discussions by members on problems coming before the meetings. A few titles of the more interesting and instructive papers and addresses selected from the various programs are the following: "Personality in Selling;" "Budgetary Control of a Retail Drug Business;" "What the Modern College of Pharmacy Teaches Its Students;" "These Changing Times;" "Suggestions for Making Suitable Profits on Professional Service;" "Drug Conditions as Found in Foreign Countries;" "Progress in Commercial and Professional Pharmacy;" "The Economics of Price Standardization;" "Drug Store Advertising;" "Coöperation between Medical and Pharmaceutical Associations." These and many other topics of equal interest made up the bulk of the programs.

H. C. CHRISTENSEN.

The Allied Drug Travelers of the respective states supplied the entertainment features. State associations owe much to these "Knights of the Grip," for their loyal and enthusiastic support in providing the needed social accompaniments.

All the meetings adopted resolutions re-endorsing the Capper-Kelly Bill and the Pharmacy Corps Bill. Another resolution adopted generally was one authorizing the sending of the state association secretary as a delegate to the AMERICAN PHARMACEUTICAL ASSOCIATION convention and to attend the Conference of Pharmaceutical Secretaries and the Conference of Law Enforcement Officials held at the same place and time. The importance and benefits to be derived for the pharmacists of the state by representation at the convention, and particularly these two conferences, was stressed and given enthusiastic approval. Many other important resolutions were adopted which will doubtlessly be published later but as no copies are available, I cannot comment on them.

That the AMERICAN PHARMACEUTICAL ASSOCIATION is being widely appreciated by the retail pharmacists of the country was apparent everywhere. This attitude was greatly strengthened by the very comprehensive and informative reports which were made to the meetings by delegates who attended the Baltimore A. PH. A. convention and the U. S. P. convention held in Washington, D. C.

Another outstanding feature of these state conventions is the apparent fact that the pharmacists of the country (at least those who attend conventions) are realizing that "we must be professional." This was the real keynote of the president's address at each meeting. Possibly the programs of a majority of the conventions contained rather too much of the commercial, but it was pleasing to note that the professional came in for a much larger share of attention this year than formerly.

That the professional side of pharmacy is the only excuse for the existence of retail pharmacy and the protection granted pharmacists under the state pharmacy laws is being recognized by the more progressive men of the profession, and that they are putting their house in order along these lines, was made clear by reports, papers and addresses. Pharmacy in the future will be successfully carried on by educated pharmacists who will have received their training—professional and at least the fundamentals of business—in properly adjusted four-year college courses.

The large majority of present-day pharmacists have not had the advantage of this more extensive college training, which fact accounts largely for the more or less chaotic condition to-day of many of the individually conducted retail pharmacies throughout the country. This phase of present-day pharmacy was frankly discussed at several of the meetings, and it was generally agreed that the higher educational requirements—the four-year course with a business as well as professional curriculum—will establish future pharmacy on a highly professional as well as successful business basis, thus giving the public the service and the protection to which it is entitled. It was pointed out that much of the grief of the individual pharmacist of to-day is directly chargeable to the fact that he has had comparatively little professional and, in a majority of cases, no systematic business training.

The importance of organization was stressed at all the meetings. In my talks at these conventions, I urged that retail pharmacists not only affiliate in larger numbers with their local and state associations, but also with the two national organizations—The AMERICAN PHARMACEUTICAL ASSOCIATION and the National Association of Retail Druggists. I emphasized the fact that each has its important functions and that all are needed for the proper progress of pharmacy. I further stated that these organizations are coöperating and serving pharmacy vigorously in their respective fields, but only a comparatively small number of retail pharmacists of the country are members and attend the meetings of these organizations. During my term of office, I hope to interest a larger percentage in organization.

I also urged retailers to individualize their stores and make them different. Several of the presidents in their addresses expressed themselves similarly.

The programs of these conventions brought forth an abundance of constructive thought and suggestions of a high and useful quality. Space will not permit

quoting these at length. However, I am going to take the liberty of quoting briefly from two of the presidential addresses, a few paragraphs which contain thoughts so germane to the welfare and progress of pharmacy that I feel wide publicity should be given them.

President A. A. Walker of the Idaho Association spoke in part as follows:

"What is the thing which distinguishes the retail pharmacy from all other kinds of retail stores with which it is in competition? That one thing is the professional standing which the pharmacist alone of all retail merchants enjoys. More than that, this professional standing is something more than an empty honor. The laws of every state in the union recognize him. They give the pharmacist the exclusive right to compound prescriptions and sell many chemicals and preparations, the dispensing of which can be left safely only to a professional man.

"Then, if the one thing which can lift the pharmacist above all other forms of retail competition is his professional standing, doesn't it seem logical that a pharmacist should do everything he can to take advantage of those privileges which belong to him alone?

"We are living in a fast age; things are moving rapidly. The man who makes a success to-day must keep step with the times. A very few years see great progress and change in all professions. The physician who takes no account of the far-reaching discoveries and developments in medicine is soon left behind. The lawyer who doesn't familiarize himself with the important legal principles which have been set down by the courts in the past ten years is simply incapacitated from practice now.

"What is true of medicine and law is just as true of the profession of pharmacy, and it is up to you and me, in order that we may maintain that professional standing, to study, to read, to build, to take advantage of every opportunity to keep pace with the modern trend of our profession."

Quoting from the address of President A. H. Vossmeyer of the California Association:

"Professional associations play a large part in the progress of the present day and age. Pharmaceutical associations are always in favor of the progressive measures to provide for better pharmacists or better conditions for the individual pharmacist. Problems arise daily which are of vital interest to the pharmacist. Legislatures often consider measures which would be detrimental and it is necessary that they be informed of all of the facts in the case. What can the individual pharmacist do? Truly, he can write to his congressman, but usually the pharmacist is more or less ignorant of the measures being considered and his attention should be drawn to certain actions of the legislature. This requires an association to watch and guard the interest of the profession. The old proverb 'In Union lies strength' is most fit to be applied to professional associations. If pharmacy is to progress in pace with other professions the individual must band himself with his fellows and form strong organizations. There is no longer any doubt of the immense value of strong pharmaceutical associations.

"The pharmacist is either an asset or a liability to his community, depending upon whether he is a success or failure. The association was founded to serve, and service has been, and still is its great opportunity and vocation. In these days of combines, mergers and terrific competition, man can no longer live by himself. It is only by coöperation and helping one another we can hope to gain for ourselves any degree of success and contentment. The most successful pharmacists are those who attend their local, state and national meetings. *They do not attend because they are successful; they are successful because they attend.*

"President-elect Christensen of the A. PH. A. put forth the idea that 'the biggest little mistake made by modern pharmacists occurred when they took the colored show globes out of their windows.' He is right. The show globe was the symbol which young and old, rich and poor, the ignorant and the learned could read and understand. 'Day and night the show globe flashed forth the message: 'Here is a drug store.' The show globe in the window will check the discredit now hurled at the drug store in that they do not look the part.

"Why not put the show globe back in the drug store window? The job will be easy, as many stores have the globes stored away in their cellars or attics. Put them where they belong, and at one stroke proclaim to the world what the store stands for.

"Since the show globe disappeared from the drug store window, new dyes have been discovered. We have learned new ways of lighting. With the show globe we can throw a flood of colored light far into the street and cause the passing throng to stop and think. An old yet new, a cheap and startling form of advertising for our pharmacies. A banner hung on the outer wall. Let's try it.

"A second idea that will help to restore the retail pharmacy to its proper place in the community may be worth thinking about. Whether the prescription business of a store is large or small, whether it brings a profit or loss, it is the department that builds prestige and good will, and establishes confidence in the community. Why not make a show of it?

"In modern times the prescription department is usually put in some obscure corner out of sight. Bring it forward! Give it a place where every customer who enters the store will see that there is a prescription department. Some druggists have, with success, installed the latest vogue of an open prescription department where prescriptions are prepared behind plate glass in full view of the customer. We need not do this, but we can put the department where it can be seen by all men.

"Here, then, are two simple ideas that can be carried out without cost and without disturbing the general merchandising business as now conducted that give promise of helping to put the drug store where it belongs."

President M. A. Weed of the Washington State Association in his address gave an interesting and instructive summary of the problems of pharmacy in the Northwest, pointing to the fact that the same conditions prevail as in other parts of the country. He showed the vast change in the financial structure of the country since the war from one of financing only the producer to the new plan of financing the easy payment buyer. This has led to highly specialized merchandising and high pressure selling, and the pharmacist, like others, must compete against the best business brains of the country. He is doing a good job but must keep himself informed on developments as they occur. Even professional aspects are changing. Economics and overhead must be applied to the prescription department to make it pay. In this day and age, men must be college trained, and the four-year course now effective in the Northwest and to become generally effective in 1932, meets this condition by providing the requisite cultural, business and professional training.

As copies of the addresses of the presidents of the Oregon, Colorado and Nebraska associations are not available to me at this time, I cannot review them here. Having heard them, however, I can say that they were constructive, the trend of thought being somewhat similar and the professional spirit dominating.

Immediately upon my return from the Western trip on Monday, July 14th, I left with Mrs. Christensen to attend the Golden Anniversary meeting of the Wisconsin Pharmaceutical Association held at Madison at that time. Editor E. G. Eberle, the official delegate representing the AMERICAN PHARMACEUTICAL ASSOCIATION, extended greetings and presented a very splendid address setting forth some of the objects, accomplishments and history of the A. PH. A. This relieved me of duties, and gave me the freedom to mingle with friends and sit back and enjoy the interesting program. Dr. Edward Kremers, president of the Wisconsin Association, is to be complimented on the outstanding success of his meeting. The innovation of limiting meetings to morning sessions left the afternoon free for sightseeing, inspection of the University of Wisconsin with its splendid phar-

macy department, research library, and Pioneer Drug Store of the Wisconsin Historical Museum, lake and automobile trips. The ladies were entertained with a reception by Mrs. Kohler, the governor's wife. Governor Kohler, Glenn Frank, president of Wisconsin University, Dr. James H. Beal, Samuel C. Henry, Dr. E. L. Newcomb and several others delivered very interesting and helpful addresses. The traveling men's association entertained with a buffet supper at Highlands, the beautiful summer home of Dr. Edward Kremers. Over 500 guests were present and immensely enjoyed this picnic party.

In conclusion, I take this opportunity to express my thanks and appreciation for the many courtesies extended to me on my Western trip, and on behalf of both Mrs. Christensen and myself during the Wisconsin convention. These kindnesses made the trips most enjoyable and happy occasions that will always be remembered.

U. S. P. EXHIBIT AT MEETING OF AMERICAN MEDICAL ASSOCIATION.

The United States Pharmacopœial Revision Committee authorized Dean Roland T. Lakey of the College of Pharmacy of the College of the City of Detroit to prepare an exhibit in the educational section of the displays shown at the Detroit convention of the American Medical Association held June 23rd to the 28th.

Leonard A. Seltzer, the instructor in prescription practice and Instructor Ralph A. Mill, his assistant—members of the faculty in the above mentioned College—were responsible for the motive and its development into a very interesting and instructive exhibit.

The following circular[1] which was distributed to all interested parties will explain the purpose of the display.

THE PHARMACOPŒIA AND PRESCRIPTION WRITING.

"Specifically the Pharmacopœia is a book of standards for substances answering to the titles included in it. In general the Pharmacopœia may function as a standard for many extemporaneous prescriptions in daily use by the physician.

"Many of the elixirs, ointments and mixtures prescribed by physicians in their daily routine may reach a higher standard of elegance and efficiency through a familiarity with U. S. P. titles and their composition.

"The specimens presented herewith show how by taking the two basic vehicles, Aromatic Elixir and Cold Cream as types, a variety of vehicles may become available. Aromatic Elixir, for instance, is built on the formula of alcohol 1 oz., syrup and water each 3 oz. This forms the simplest elixir possible. By flavoring the alcohol with orange we have Aromatic Elixir: a variety of flavors might be used in place of orange as occasion requires, or the various syrups of the Pharmacopœia might be substituted for simple syrup.

"In the case of ointments, the type of cold cream might be modified by using different oils and waxes such as those of mineral origin as the medicament may require.

"Specimens of such procedure are presented herewith, as well as illustrations of the effect of colloids in mixtures calling for suspensions of heavy substances or of alcoholic solutions of resinous substances in water. These examples of the use of the U. S. P. in prescription writing illustrate wherein the art of pharmacy may help the busy physician.

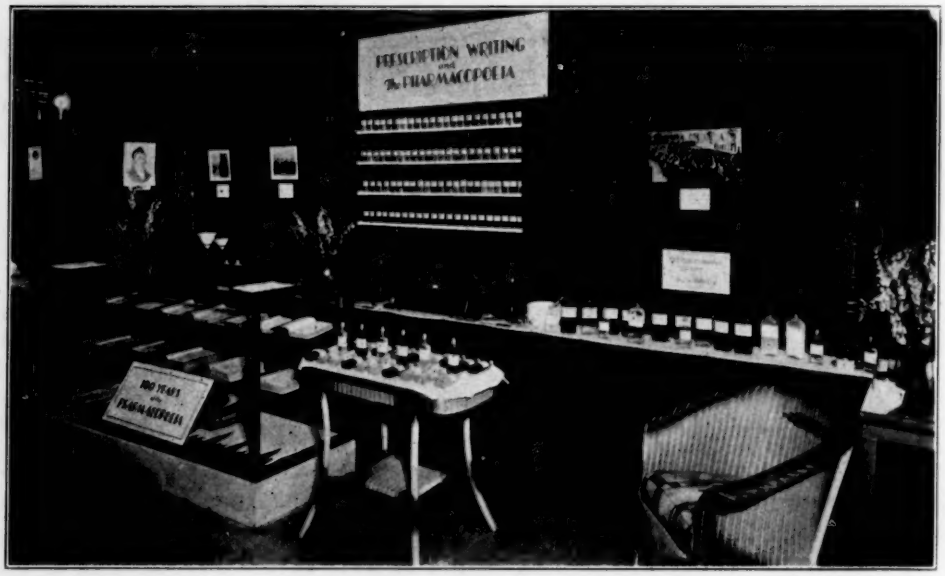
"May we suggest when you are in need of a distinctive preparation that you confer with your pharmacist as to the usefulness of U. S. P. vehicles, etc.?"

A picture which accompanies this article shows the booth and its contents. The large bottles in the background contained sixteen ounces of various extemporaneous elixirs made up according to U. S. P. formulas. The smaller bottles on the table in the foreground contained four-

[1] Barbital and Phenobarbital in different vehicles, in which Syrup of Wild Cherry, Citric Acid, Tolu, Orange, Orange Flowers, Sarsaparilla Compound, Aromatic Elixir and Elixir Glycyrrhiza were represented, *i. e.*, each in a different formula; that part of the circular is omitted.

ounce samples of each of the various formulas described in the circular.[1] These samples were conveniently placed so that the visiting physician could pick them up, examine them and have his interest thus aroused.

The pictures upon the back wall starting with the left-hand side are as follows: Dr. Lyman Spalding, the chairman of the First Pharmacopœial Revision Committee of 1820. The next picture was of the newly elected Board of Trustees, followed by that of the newly elected Committee of Revision. Upon the right side of the prescription counter, a picture of the General Assembly of the U. S. P. Convention of May 1930.



DETROIT U. S. P. EXHIBIT.

The two show globes of rock crystal were loaned by Bernard Bialk, former partner of the late Charles F. Mann. The show-case in the foreground contained a complete set of Pharmacopœias dating from 1820 to 1920, inclusive. These were loaned from the Frederick Stearns' collection.

The flowers used to ornament the booth were furnished fresh cut daily and were donated by the Parke-Davis Company from their drug farm. They consisted of different varieties of digitalis.

Various members of the faculty and advanced students were in daily attendance in the booth. The Convention was unusually well attended and many pleasing comments were made upon the appearance and the scheme carried out in the exhibit.

BRITISH OPTIMISM RELATIVE TO PHARMACY.

Xrayser III in *Chemist and Druggist* for August 2nd comments on the address of Chairman Humphrey of the British Pharmaceutical Conference. He says, "the policy of constructive optimism is decidedly preferable to one of gloomy foreboding which allows passing phases to overshadow the entire outlook. As the business of the chemist and druggist has been allowed to become largely a medium for the distribution of packed goods and proprietaries, there was some measure of justification for the assumption that pharmacy as an occupation was played out but only on the part of those who could see in the pharmacist nothing but the chemist and druggist writ large. With the broader outlook taken by Mr. Humphrey we see that British pharmacy is still in an early stage of evolution and that what he describes as its province is practically without limit."

SCIENTIFIC SECTION

COMPARATIVE METHODS OF ASSAYS OF CHINESE EPHEDRAS.

BY Y. D. HSU.*

Seeing that the present methods of assays of Chinese Ephedras would not yield concordant figures for the percentage of total alkaloids of the same sample, the investigator has in view the finding of a suitable method, not too expensive nor too cumbersome, so that by preference such a method may be adopted as the standard.

In order to give a fair judgment of the quality of Chinese Ephedras, the Ephedras sample consisting of both *E. equisetina* and *E. sinica*—a mixture always obtainable from the Chinese market as the gatherer hardly knows nor cares for the difference in the drugs—were collected and dried in Tatung, Shansi, North China, by the Northwest Industrial and Trading Corporation of Tientsin, under the personal supervision of the investigator and were garbled to remove roots and foreign materials. The Ephedras were ground to powder, passed through a No. 20 sieve, and dried for seven days in a desiccator over sulphuric acid. The moisture content was found to be 4.7 per cent.

Before starting to experiment on methods, it might be mentioned that by applying the U. S. P. X method of assay for Belladonna alkaloids, only 0.87 of total base was obtained as the result of titration against 0.1 *N* HCl, using methyl red T. S.—the indicator used throughout the following experiments.

Experiment No. 1.—Mix, in a mortar or a dish, 5 Gm. of freshly slaked lime with 20 Gm. of Ephedras in powder, accurately weighed; add about 40 cc. of distilled water and incorporate until uniformly mixed and the powder is evenly moistened. Macerate the limed Ephedras for about ten minutes, and transfer the drug to a flask or, preferably, to a separatory funnel of about 500 cc. capacity. Dissolve 5 Gm. of ammonium chloride in 30 cc. of distilled water and add this solution to the drug in the funnel. After about five minutes, add 70 cc. of 95% alcohol and shake the mixture for fifteen minutes, then add 100 cc. of the alcohol in the same proportion, at a time; follow by vigorous shaking, as before, until 400 cc. has been added. Leave the mixture to macerate over night, or twelve hours, filter and return the drug to the same funnel. Instead of filtration, the alcoholic extraction can be cautiously run out from the funnel by slowly and carefully regulating the stop-cock. Evaporate the filtrate on a water-bath until there is no odor of alcohol and filter again into a second separatory funnel, carefully rinsing the filter with dilute ammonia water. The aqueous extract after being made strongly alkaline by the addition of 10 cc. of stronger ammonia water is shaken out three times for one hour each with chloroform 50, 40 and 40 cc., respectively. The chloroform extractions are evaporated *in vacuo* or, spontaneously, to dryness; the extract is dissolved in a little neutralized alcohol and titrated against 0.1 *N* HCl. There were used 16.32 cc. of 0.1 *N* HCl, indicating 1.3488% of total base.

The alcohol-extracted drug in the funnel is further frequently shaken out during three hours with 150 cc. of chloroform, 10 cc. of stronger ammonia and

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20 cc. of distilled water, being added prior to shaking. The chloroform extract is evaporated to dryness and titrated against 0.1 *N* HCl by first dissolving in a little neutralized alcohol, expelling same and filtering, if necessary. There were used 4.5 cc. of 0.1 *N* HCl, indicating 0.3719% of total base.

The twice-extracted drug is shaken out again during three hours with 100 cc. of chloroform and 10 cc. of stronger ammonia, and the chloroform extract is titrated against 0.1 *N* HCl as before. There were used 1.48 cc. of 0.1 *N* HCl, indicating 0.1223% of Ephedrine base. The total alkaloidal content was found to be 1.84%.

Experiment No. 2.—(*a*) Mix about 10 Gm. of freshly slaked lime with 20 Gm. of Ephedras in powder, accurately weighed, in a mortar or other suitable vessel; add about 50 cc. of distilled water, and incorporate until evenly moistened; macerate the mixture for about ten minutes and transfer the drug to a percolator. Pour on the drug 50 cc. of distilled water in which 3 Gm. of ammonium chloride has been previously dissolved, and, after about ten minutes, add 50 cc. of 95% alcohol. Macerate the mixture for about 12 hours, start the percolation at its natural rate and continue the percolation until 200 cc. of alcohol diluted (1–1) have been added and drained. Evaporate the percolate on a water-bath to drive off the alcohol and shake out the alkaloids, three times, during one hour, each with chloroform 50, 40 and 30 cc., respectively. The aqueous extract, after being filtered and rinsed with dilute ammonia, is made alkaline by adding 10 cc. of stronger ammonia water. Collect the chloroform extractions, filtering each portion if necessary; evaporate *in vacuo*, or spontaneously; dissolve the extract in a little neutralized alcohol, and titrate against 0.1 *N* HCl; 14.13 cc. of 0.1 *N* HCl were used, indicating 1.1678% of Ephedrine base.

(*b*) When the first percolation is finished, the drug in the percolator is immediately macerated with 30 cc. of distilled water, in which 3 Gm. of ammonium chloride has been dissolved, and, after ten minutes, followed by 70 cc. of 95% alcohol. After about 12 hours' maceration the percolation is carried through by the addition 200 cc. of diluted alcohol (alcohol 2, water 1). Proceed as before by evaporating the percolate, filtering, making alkaline, shaking out with chloroform, and titrating against 0.1 *N* HCl; 5.5 cc. of 0.1 *N* HCl were used, indicating 0.4545% of total base.

(*c*) After the second percolation is finished, the drug is further macerated with 20 cc. of distilled water, in which 4 Gm. of ammonium chloride has been dissolved; after 10 minutes, followed by 80 cc. of 95% alcohol and, after about 12 hours, the percolation is carried through by the addition of 200 cc. of diluted alcohol (alcohol 4, water 1). Proceed as before and titrate against 0.1 *N* HCl; 3.14 cc. of 0.1 *N* HCl were used, indicating 0.2595% of total base. The total alkaloidal content was found to be 1.88% in terms of Ephedrine base.

Experiment No. 3.—This is a repetition of No. 2 method, but instead of making three titrations, all three percolations are combined and titrated once for all. There were used 19 cc. of 0.1 *N* HCl, indicating 1.57% of total base.

Experiment No. 4.—This method is a modification of No. 1 but only allowing about three minutes each for the lime maceration and the lime ammonium chloride reaction before the addition of the alcohol. The alcoholic extraction yielded 1.0248% of total alkaloids.

After the alcoholic extraction, ether has been used for further extraction of the drug instead of chloroform and the result showed 0.4297% of Ephedrine base. The third maceration was accomplished by chloroform and 0.2562% of the base had been extracted. The total alkaloidal content by this method was 1.71% of Ephedrine base.

Experiment No. 5.—This is another modification of No. 1 method, allowing more time, about twenty minutes, for the lime reaction; thirty minutes for the lime ammonium chloride reaction, and forty-eight hours for the maceration; also doubling the quantity of lime and ammonium chloride, *i. e.*, 10 Gm. each. The alcoholic maceration yielded 1.457% of total base. After the alcoholic extraction, the drug in the funnel was further shaken out with chloroform as in case of No. 1 method and the chloroformic extraction was found to yield 0.377% of total base. The third extraction was performed with 100 cc. of chloroform and 10 cc. of stronger ammonia; the result was 0.15% of total base. The total alkaloidal content was found to be 1.984%.

The first and second titrations were reserved, shaken out with chloroform, and retitrated, requiring 13.69 cc. of 0.1 *N* HCl, showing 1.131% of total base.

Experiment No. 6.—This method is a modification of No. 2. The time allowed for reactions was prolonged to 15 minutes for the lime. Instead of adding the ammonium chloride separately, the ammonium chloride (2%) was dissolved in diluted alcohol (alcohol 95% 70 and water 30) and 100 cc. of this alcohol ammonium menstruum used to macerate the drug for about twelve hours, after the lime reaction, as in No. 2. The percolation was carried through and drained when 500 cc. of the same menstruum had been added and finished. The first percolation yielded 1.999% of total base by titration against 0.1 *N* HCl. After the first percolation, the drug was further extracted by adding 200 cc. of the same menstruum, after twelve hours' maceration. The second percolation extracted 0.056% of Ephedrine base. The total alkaloidal content was found to be 2.055%, highest of all the experiments.

The two titrations were reserved, shaken out with chloroform, and retitrated, using 14.77 cc. of 0.1 *N* HCl, indicating 1.22% of the total base. The large difference in the total base was believed to be due to the action of the atmospheric hydrochloric acid, which had partially neutralized the base as the chloroform extractions were not evaporated *in vacuo* but, spontaneously, in the air. This view was confirmed by the fact that during evaporation, nearing the end, the chloroform insoluble (almost) crystals of ephedrine hydrochloride were observed as white crystals floating on chloroform and also on the sides of the dish. Another fact might be mentioned that during the operation, distillation of hydrochloric acid had been going on, therefore, the acid was, naturally, carried by the atmosphere.

The fact has been proved by reshaking out with chloroform, after rendering the titrated solution strongly alkaline by caustic soda and stronger ammonia, evaporating the chloroform extractions *in vacuo*, and retitrating against 0.1 *N* HCl when 16.52 cc. had been used, indicating 1.365% of total base.

DISCUSSION.

While these results do confirm the high percentage of total alkaloids obtained by Feng and Read, and others; it, however, does not emphasize the need for hot

extraction, nor does it encourage the use of strong bases like soda and potash for liberating the alkaloids. A weak base like lime appears sufficient to liberate the alkaloids, but ammonium chloride and alcohol are essential to carry the alkaloids into solution. Both lime and ephedrine will liberate ammonia which will, in turn, further liberate the alkaloids and, partly, cause the formation of ephedrine hydrochloride, since ephedrine is a stronger base than ammonia and liberates it out from its salt. It is important to add the ammonium chloride, little at a time and constantly, as shown by the 6th experiment. Also the time allowed for the reactions is not a factor to be neglected.

TABLE OF RESULTS OF VARIOUS EXPERIMENTS.

Method.	Time allowed for reactions.	First extraction.	Reagents and solvents used.	Second extraction.	Reagents and solvents used.	Third extraction.	Reagents and solvents used.	Total base.
U. S. P. X Bellad. alkaloids	As specified	0.87%	As specified	.....		.....		0.87%
1st experiment	10 minutes for lime, 5 minutes for NH_4Cl and lime	1.3488%	Lime 5 Gm. NH_4Cl 5 Gm. alcohol 70 / water 30 — 500 cc.	0.3719%	Stronger NH_3 water, 10 cc., chloroform, 150 cc.	0.1223%	Stronger NH_3 water, 10 cc., chloroform, 100 cc.	1.84%
2nd experiment	10 minutes each for lime and NH_4Cl, lime	1.1678%	Lime 10 Gm. NH_4Cl 3 Gm. alcohol 1 / water 1 — 300 cc.	0.4545%	NH_4Cl 3 Gm. alcohol 20 / water 10 — 300 cc.	0.2595%	NH_4Cl 4 Gm. alcohol 80 / water 20 — 300 cc.	1.88%
3rd experiment	10 minutes each for lime and NH_4Cl, lime		Lime 10 Gm. NH_4Cl 3 Gm. alcohol 1 / water 1 — 300 cc.	.....	NH_4Cl 3 Gm. alcohol 20 / water 10 — 300 cc.	.....	NH_4Cl_4 Gm. alcohol 80 / water 20 — 300 cc.	1.57%
4th experiment	3 minutes each for lime and NH_4Cl and lime	1.0248%	Same as the first method	0.4297%	Stronger NH_3 water, 10 cc., ether, 150 cc.	0.2562%	Same as the first method	1.71%
5th experiment	20 minutes for lime, 30 minutes for NH_4Cl, lime	1.457%	Lime 10 Gm. NH_4Cl 10 Gm. alcohol 70 / water 30 — 500 cc.	0.377%	Stronger NH_3 water, 15 cc., chloroform, 150 cc.	0.15%	Stronger NH_3 water, 10 cc., chloroform, 100 cc.	1.984%
6th experiment	15 minutes for lime	1.999%	Lime 10 Gm. NH_4Cl, 2% alcohol 70 / water 30 — 600 cc.	0.056%	NH_4Cl 2% alcohol 70 / water 30 — 200 cc.	.....	.....	2.055%

CONCLUSION.

Experiment No. 6 may be recommended as the standard method; only 600-cc. percolation being necessary, as the second percolation does not yield appreciably high result.

The investigator wishes to announce that this report is open to critical discussions. Also this is only preliminary work on Mahuang, and further reports will follow in the course of time.

REFERENCES.

C. T. Feng and B. F. Read, JOUR. A. PH. A., 16 (1927), 11.
T. Q. Chou, *J. Biol. Chem.*, 70 (1926), 109.
R. E. Schoetzow and G. H. Needham, JOUR. A. PH. A., 15 (1926), 1070.

A METHOD FOR THE QUANTITATIVE DETERMINATION OF THEOPHYLLINE AND ETHYLENE DIAMINE THEOPHYLLINE.*

BY PHILIP W. SCHMITT.[1]

Ethylene diamine theophylline or euphyllin, as it is commonly called, has been used for a long time in the treatment of certain types of cardiac cases. Our laboratory, engaged in the synthesis of this material, found it necessary to develop a method for the chemical control of the product. A survey of the literature showed no reference to a detailed procedure for the analysis of theophylline. The literature mentions the fact that theophylline forms an insoluble silver compound with silver nitrate. A silver nitrate method (1) for the analysis of theobromine, which is an isomer of theophylline, was applied to theophylline and excellent results were obtained. This method cannot be applied to the analysis of ethylene diamine theophylline because not only does the theophylline react with the silver nitrate but the ethylene diamine also reacts with the silver salt giving results that are too high.

In order to analyze ethylene diamine theophylline it was necessary to develop a reagent which would not react with ethylene diamine. Silver ammonium chloride was found to be a suitable reagent.

DETERMINATION OF THEOPHYLLINE.

Preparation of the Reagent.—Weigh out 12.0 Gm. of silver nitrate and dissolve in 300–400 cc. of water. Acidify with a little nitric acid and add sufficient ammonium chloride to precipitate all of the silver. Wash three or four times by decantation. Add 300 cc. of water and 90 cc. of ammonia water (28%). Shake until the silver chloride is dissolved. Dilute to one liter and filter. (The reagent should be kept in the dark when not in use.)

Standardization of the Reagent.—Burette out 50 cc. of the reagent and acidify with nitric acid (1 : 1). Heat to boiling to coagulate the silver chloride. Cool. Filter and wash with nitric acid (1 : 50) and finally wash with cold water. Dry at 100° C. and heat to constant weight at 130° C.

Method.—Weigh out about 0.1 Gm. of anhydrous theophylline and dissolve in 2.5 cc. of ammonia water (1 : 9), or 0.12 Gm. of ethylene diamine theophylline and dissolve in water. Make total volume about 20 cc. Add 50 cc. of the reagent. (While the reagent is being added, the contents and flask must be kept in a water-bath, at 60–65° C.) The flask is then put in a water-bath for 30 minutes at 60–65° C. Cool the flask and contents to room temperature, dilute to 100 cc. and filter. Measure out a 40 cc. sample. Acidify with nitric acid (1 : 1) and heat to boiling. Cool. Filter and wash the precipitate with nitric acid (1 : 50) and finally with cold water. Dry at 100° C. and heat to constant weight at 130° C.

Calculation.—(Weight of AgCl)(2.5)(75.26%) = Gm. of silver not used to precipitate theophylline.

Weight of silver in 50 cc. reagent
−Weight of silver found in the filtrate
=Weight of silver used to precipitate theophylline.

(Silver used to precipitate theophylline) (1.6693) = Gm. of theophylline in the sample.

NOTES.

1. The reagent was worked out by experiment and it was found that concordant results were obtained when the ratio employed above was used in the experiment.

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* Scientific Section, A. PH. A., Baltimore meeting, 1930. No discussion.

[1] Laboratories of G. D. Searle & Co., Chicago, Ill.

2. The flask must be kept in a water-bath from the time the reagent is added to the theophyllin solution, otherwise a very gelatinous precipitate will be obtained which will not allow the solution to filter.

3. The flasks must be lightly stoppered from the time the reagent is added to the ethylene diamine theophylline until the solution is ready to filter. During the filtration the funnels should be covered with a watch glass to prevent (as much as possible) the air from coming in contact with the silver solution.

4. The percentage error in this method is not very large. It is well within the tolerances allowed by the Government for the standardization of pharmaceutical preparations.

DETERMINATION OF ETHYLENE DIAMINE.

Ethylene diamine in combination with another compound cannot be determined by ordinary chemical methods. We can calculate the ethylene diamine content from the figures obtained by subtracting from the total nitrogen content of the ethylene diamine theophylline, the calculated nitrogen content of the theophylline as determined by the silver method.

Method.—A sample of about 0.12 Gm. of ethylene diamine theophylline is placed in a 500-cc. Kjeldahl flask with 5 Gm. of anhydrous sodium sulphate, 0.25 Gm. of hydrated copper sulphate and 10 cc. of concentrated sulfuric acid. The flask is heated gently at first and finally heated vigorously until all the ethylene diamine theophylline has been digested. Cool. Add water and alkali, and distill the ammonia into 35 cc. of $N/10$ sulphuric acid. I prefer to add 50 cc. of water and 75 cc. of sodium hydroxide solution (1 : 1) to the digestion mixture and aerate for one hour, absorbing the liberated ammonia in 35 cc. of $N/10$ sulphuric acid.

A method of calculation for the ethylene diamine theophylline, based on the theophylline and total nitrogen determination follows:

METHOD OF CALCULATION OF ETHYLENE DIAMINE THEOPHYLLINE FROM THE TOTAL NITROGEN AND THEOPHYLLINE DETERMINATIONS.

NITROGEN BY KJELDAHL METHOD.

30.61 cc. of $N/10$ H_2SO_4 required to neutralize the ammonia liberated from a 0.12 Gm. sample of ethylene diamine theophylline.

To Calculate Theophylline in Terms of $N/10$ H_2SO_4.

1 cc. of $N/10$ H_2SO_4 = 0.0014 Gm. of nitrogen.
Molecular weight of theophylline ($C_7H_8N_4O_2$) = 180.09

$\frac{180.09}{40{,}000}$ = 0.00450 Gm. of theophylline corresponds to 1 cc. of $N/10$ H_2SO_4.

$\frac{0.0914}{0.00450}$ = 20.31 cc. of $N/10$ H_2SO_4 = 0.0914 Gm. of theophylline found in 0.12-Gm. sample of ethylene diamine theophylline by the silver method.

To Calculate Ethylene Diamine from $N/10$ H_2SO_4.

30.61 cc. total $N/10$ H_2SO_4 used
20.31 cc. $N/10$ H_2SO_4 corresponding to theophylline
10.30 cc. $N/10$ H_2SO_4 corresponding to ethylene diamine.

1 cc. $N/10$ H_2SO_4 = 0.0014 Gm. nitrogen
Molecular weight ethylene diamine ($C_2H_8N_2$) = 60.084

$\frac{60.084}{20{,}000}$ = 0.0030 Gm. of ethylene diamine corresponding to 1 cc. $N/10$ H_2SO_4

10.30
0.003
0.0309 Gm. of ethylene diamine in 0.12 Gm. of ethylene diamine theophylline

0.0914 Gm. of theophylline by silver method
0.0309 Gm. of ethylene diamine

$\frac{0.1223}{0.12}$ = 1.019 (100) = 101.9% ethylene diamine theophylline in the sample considering ethylene diamine theophylline as mono-derivative $(C_2H_2(NH_2)_2)(C_7H_8N_4O_2)$.

Ethylene diamine theophylline may be either a mono-theophylline, a di-theophylline ethylene diamine or a mixture of the two.

The preparation made by our laboratory is almost entirely mono-theophylline ethylene diamine as is shown by the analysis given by Table II. Usual commercial samples indicate a mixture of the two compounds.

The reagent is fairly sensitive. Under favorable conditions 0.5 mg. of theophylline in 5 cc. can be detected. The following tables show the accuracy with which theophylline and ethylene diamine theophylline may be determined.

TABLE I.

Anhydrous theophylline taken	0.05 Gm.	0.07 Gm.	0.09 Gm.	0.11 Gm.	0.13 Gm.	0.15 Gm.	0.17 Gm.	0.25 Gm.	0.27 Gm.	0.29 Gm.	0.31 Gm.
Per cent of theophylline found by several determinations	99.3	99.5	99.0	101.6	98.9	98.6	100.0	98.5	97.8	99.3	98.1
	98.2	98.3	99.6	100.3	99.2		100.2	98.1	97.8	99.0	
	98.3	97.2			99.9				98.38	98.0	
					99.2				98.00		
Average per cent found	98.6	98.3	99.3	100.9	99.4	98.6	100.1	98.3	97.99	99.0	98.1

TABLE II.

Sample of 5 cc. of a solution of ethylene diamine theophylline labeled as containing 0.12 Gm. of dry material per 5 cc.	LABORATORY PREPARATION OF ETHYLENE DIAMINE THEOPHYLLINE.		COMMERCIAL SAMPLE OF ETHYLENE DIAMINE THEOPHYLLINE.	
	Ethylene diamine. 0.0309 Gm.	Theophylline. 0.0914 Gm.	Ethylene diamine. 0.0260 Gm.	Theophylline. 0.0834 Gm.
Per cent found	25.26	74.73	23.76	76.23
Weight of ethylene diamine theophylline found	0.1223 Gm.		0.1094 Gm.	
Per cent of ethylene diamine theophylline found	101.9%		91.1%	

The above results show that the method gives very consistent results and is relatively simple. Theophylline reacts with silver ammonium chloride to form a white gelatinous precipitate of silver theophylline which coagulates on heating.

$$C_7H_8N_4O_2 + Ag^+ \longrightarrow C_7H_7N_4O_2Ag$$

Silver and nitrogen contents of the dried precipitate are in harmony with this formula.

TABLE III.

SILVER THEOPHYLLINE.

$C_7H_7N_4O_2$ Ag.

	Calculated	Found.
Silver	37.59	37.00
Nitrogen	19.52	19.70

DISCUSSION.

As the chemical name for this product is rather long and since the only other synonym is a proprietary term of European origin, I would like to propose the word *aminophylline* as a non-proprietary name to designate these preparations. It is a short name and indicative of the chemical constitution, particularly since the ethylene diamine is used only for the purpose of keeping the theophylline in solution with a non-volatile amino base.

The method described in this paper has not been checked as to all possible interfering substances that may be met with in practice, but it has the advantage of not being influenced by ordinary salts and not being affected by the different hydrogen-ion concentrations of different samples.

Theobromine and caffeine do not give a precipitate with silver ammonium chloride. If theobromine and caffeine are used as substitutes in commercial preparations, only the theophylline will be determined by this method. However, the solubility of theobromine in the presence of ethylene diamine is very small. Whereas one mole of ethylene diamine will dissolve one mole of theophylline, it will only dissolve one fortieth of a mole of theobromine under the best conditions. Therefore the ethylene diamine content determined by this method and found to be that of pure ethylene diamine theophylline would only allow approximately two per cent, at the most, of theobromine as a substitute for theophylline. As caffeine is still less soluble than theobromine, under these conditions the method may be considered quite specific for theophylline.

Ammonia as a substitute for ethylene diamine may be determined by adding sodium hydroxide to the sample and aerating. Ten cc. of sodium hydroxide solution containing 0.8 Gm. of sodium hydroxide was added to 10 cc. of ethylene diamine theophylline solution containing 0.03 Gm. of ethylene diamine and aerated for one hour. No ethylene diamine could be found to have vaporized into the standard sulphuric acid. The same experiment was performed with a sample of an ammonia solution of theophylline containing 0.0039 Gm. of ammonia. One hundred per cent of the ammonia was recovered, showing the ease with which ammonia may be detected in the sample.

SUMMARY.

A method for the determination of ethylene diamine theophylline has been developed, based upon the use of silver ammonium chloride as a precipitant for theophylline, and the total nitrogen content by the Kjeldahl method.

It has been shown that the method gives concordant results under various experimental conditions and is sufficiently specific to exclude any substances likely to be used as substitutes.

REFERENCE.

(1) "Food Inspection and Analysis—Leach," Fourth Edition, 1920, page 414.

ABSTRACT OF DISCUSSION.

Arno Viehoever asked what was gained by abbreviating the name so the composition could not be recognized. He thought that the name amino theophyllin would be more satisfactory than aminophyllin.

The author replied that the thought was in mind to provide a short name for the product being placed on the market. He agreed that the name amino theophyllin would be more indicative of the constitution of the product; that they were endeavoring to get away from the proprietary name of European origin Euphyllin. He, however, agreed that the name suggested by Dr. Viehoever was preferable.

THE EFFECT OF STABILIZERS IN LARD IN RELATION TO ITS USE IN OINTMENT OF POTASSIUM IODIDE, N. F. V.*,**

BY WILLIAM J. HUSA.***

Using the Kreis test as a criterion of the degree of rancidity, Husa and Husa (1) found that benzoic and cinnamic acids are not effective in retarding the development of rancidity in lard. The effect of benzoin could not be determined by the method used, because Siam benzoin contains aldehydes or other compounds which give a pronounced red color in the Kreis test.

In a further study by the same authors (2), it was found that hydroquinone reduces the rate of development of rancidity in fats; this result indicated that there was at least some basis for the patent claims of Moureu and Dufraisse (3). The following compounds, in a concentration of 0.5%, were found to have no effect on the rate of development of rancidity: salicylic acid, acetylsalicylic acid, beta-naphthol, liquefied phenol, *dl*-alanine, pyrogallic acid, resorcinol and thymol.

As indicated in the review of the literature in a previous paper (1), the value of benzoin as a preservative of lard seems well established in the older literature. During the past 50 or 60 years, however, no further progress has been made in the study of the effect of benzoin. In fact there has been a tendency to question the value of benzoin. A chemist who has done considerable work on the rancidity of fats has stated (4) that he considers benzoin and other substances to be of no value as preservatives. According to Fiero (5), "benzoin..... is far from a perfect preservative. A sample of benzoinated lard in sunlight at 33° C. developed rancidity in three days. Samples of benzoinated lard or ointments prepared from this compound are commonly found rancid in drug stores."

Since the Kreis test is not applicable to benzoinated lard, and since the odor of benzoin interferes more or less with the detection of rancidity by the sense of smell, it has seemed desirable to apply some other method for the measurement of rancidity. It was felt that a further study would give a better idea of the real effect of benzoin, and would make it possible to directly determine the relative value of other stabilizers as compared with benzoin.

It is well known that rancid fats liberate iodine from potassium iodide, due in all probability to the peroxide linkages in the partially oxidized fat. In Ointment of Potassium Iodide, N. F. V, 1% of sodium thiosulphate is included to prevent the appearance of free iodine for a reasonable time, it being further directed that the ointment should not be dispensed unless it has been freshly prepared.

Deschamps, in 1843, in the paper (6) in which he reported his discovery of the preservative effect of benzoin, indicated that potassium iodide could be used

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* Scientific Section, A. PH. A., Baltimore meeting, 1930.

** This investigation was aided by a grant from the AMERICAN PHARMACEUTICAL ASSOCIATION Research Fund.

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as a test for rancidity. Relative to the effect of benzoin, he stated that an ointment containing 4 Gm. of KI, 4 Gm. of water, and 30 Gm. of "benzoated grease" showed no change in six months. More recently, Tschirch and Barben (7) have also followed the progress of rancidity in fats by the color of free iodine in ointments containing KI.

In the present study, the method of using KI to measure the rancidity was employed, using the formula for Ointment of Potassium Iodide, N. F. V as a basis.

EXPERIMENTAL PART.

Effect of Benzoinating Pure Leaf Lard.—Pure leaf lard was benzoinated by the U. S. P. process, except that it was filtered through filter paper in a hot water funnel. Another sample of the lard was heated and filtered in the same way, but without benzoin. Ointment of Potassium Iodide was prepared from each sample by the N. F. process except that the sodium thiosulphate was omitted. Samples stored in Parr weighing bottles in the dark at room temperature showed color changes as follows:

	After 1 day.	After 2 days.	After 9 days.	After 40 days.	After 78 days.
Plain	Creamy white	Cream	Light yellow	White; light yellow at surface	White; light brown at and near surface
Benzoinated	Creamy white or white	Creamy white	Cream	Cream	Cream or pale yellow

Samples stored in diffused light in beakers covered with paper gave results as follows:

	After 1 day.	After 2 days.	After 9 days.	After 40 days.
Plain	Cream, with some light brown on side of beaker	Yellow, with some brown on sides of beaker	Pure white area on side toward light; brown wherever exposed to air and where partially protected from light	Same as after 9 days
Benzoinated	Creamy white	Creamy white	Yellow	Yellow

It is seen that benzoin reduces the rate of liberation of free iodine, the color of the plain ointment after 2 days being the same as that of the benzoinated ointment after 9 days. It is well known that unsaturated glycerides are able to decolorize iodine by taking on iodine at the double bonds. In the above experiments, therefore, iodine was being liberated by one reaction and absorbed by another. It is therefore clear that the amount of free iodine present at any given time would be the resultant of the two opposing reactions. The appearance of a pure white area in an ointment in which free iodine had been liberated would indicate that in that portion of the ointment the absorption of iodine at the double bonds had fully equalled the liberation of iodine by the peroxide linkages introduced by partial oxidation. Such white areas were observed as indicated in the tables. In the dark, the plain ointment became white after 78 days, except in the upper portion, where the accessibility of the air caused the deterioration of the lard to proceed at a rate sufficiently high to cause the liberation of iodine to exceed the absorption. In diffused light, the plain ointment also showed the white area where protected from air, but in this case only on the side toward the light. It is thus apparent that light increases the rate of absorption of iodine at the ethylenic

linkages. And since the white areas did not appear in the benzoinated ointments, it is also clear that benzoin retards the absorption of iodine at the double bonds.

To verify these results, the experiments were repeated, using in place of the pure lead lard, a good commercial sample of ordinary pure lard. The results fully confirmed the previous observations. It is therefore concluded that plain lard deteriorates several times as rapidly as benzoinated lard, measuring the deterioration by the amount of free iodine liberated from potassium iodide, and that benzoin also reduces the rate of absorption of iodine at the ethylenic linkages.

Effect of Benzoin on the Color of Ointment of Potassium Iodide, N. F. V.—Ointment of Potassium Iodide, N. F. V was prepared from benzoinated pure leaf lard, and another ointment was prepared in the same manner except that benzoinated lard was replaced by pure leaf lard which had been heated and filtered as in the benzoination, but using no benzoin. Samples stored in Parr weighing bottles in the dark at room temperature showed color changes as follows:

	After 10 days.	After 48 days.
Plain	White	White
Benzoinated	White	Grayish white

Samples stored in diffused light in beakers covered with paper gave results as follows:

	After 10 days.	After 48 days.
Plain	White	White
Benzoinated	White	White; gray on side toward light

The observation of the development of a gray color in the N. F. Ointment of Potassium Iodide was verified by other tests. In ointments made without sodium thiosulphate, which turned light brown but later bleached to a lighter shade in the portions protected from air, it was likewise noticed that the light area was grayish white when benzoinated lard had been used and pure white when plain lard had been employed. It is thus apparent that the gray color which develops in ointment of potassium iodide after several weeks is caused by the use of benzoin in the lard.

Effect of Hydroquinone.—Since previous work had shown that hydroquinone retards the deterioration of lard, experiments were carried out to test the value of hydroquinone as a stabilizer in ointment of potassium iodide. An ointment was prepared substituting 0.5% of hydroquinone for the sodium thiosulphate and using pure leaf lard. A sample stored in the dark in the refrigerator was grayish white after 2 days, while samples stored at room temperature in the dark and in diffused light were grayish brown after 2 days. In another ointment of potassium iodide, pure leaf lard was used and 0.5% of hydroquinone was employed in addition to the sodium thiosulphate; otherwise the directions of the N. F. V were followed. This ointment was white when finished but turned gray in 15 or 20 minutes; after 1 day at room temperature both in the dark and in diffused light the color was brownish gray. On account of the color developed, varying from gray to brown, hydroquinone is unsuitable for use as a stabilizer for lard in ointment of potassium iodide.

SUMMARY.

1. Although the value of benzoin as a preservative of lard has seemed well established in the older literature, there has recently been some question on this point.

2. Measuring the deterioration by the liberation of free iodine from potassium iodide, it was found that plain lard deteriorates several times as rapidly as benzoinated lard.

3. In regard to the decolorization of iodine by unsaturated fats, it was found that benzoin reduces the rate of absorption of iodine at the ethylenic linkages.

4. Although 0.5% of hydroquinone has been found to retard the development of rancidity in lard, it is not suitable for use as a stabilizer in ointment of potassium iodide, on account of the color developed, varying from gray to brown.

5. The color of Ointment of Potassium Iodide, N. F. V changes from white to gray after several weeks. The ingredient responsible for this change is the benzoin used as a stabilizer in the lard.

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THE EFFECT OF HEAT ON ACACIA.*

BY L. F. GABEL.

In a previous paper the effect of heat on tragacanth was described (JOUR. A. PH. A., 17 (1928), 1206). The work covered in this paper was prompted by the results obtained with tragacanth upon application of heat.

The first step in this investigation was concerned with the effect of heat on powdered acacia. In all the experiments the U. S. P. formula for Mucilage of Acacia was used. Thirty-five-gram samples of powdered acacia (best grade) were taken from three different commercial lots, transferred to porcelain dishes and then subjected to heat at 100° C. for two days. The dishes were removed from the source of heat and allowed to cool to room temperature. Sufficient water was then added to produce 100 cc. of mucilage.

Control samples of Mucilage of Acacia were also prepared from the three lots of acacia in order to establish a possible difference between heated and normal acacia.

A specially standardized pipette was found best adapted for determining the relative viscosities of the experiments. A 50-cc. pipette was calibrated for

* Scientific Section, A. PH. A., Baltimore meeting, 1930. No discussion.

the purpose by noting the number of seconds required for water to flow from the upper to a lower mark placed about three inches above the tip of the pipette.

The three mucilages prepared from the normal acacia required 240, 253 and 227 seconds to flow from the upper to lower mark on the pipette, while water required twenty seconds. Mucilages made with heated acacia required 741, 655 and 794 seconds, respectively. Assuming water as 1.0 and reducing the above results for comparative values by dividing by twenty, then the values for normal mucilages of acacia were 12.0, 12.6 and 11.3. Mucilages prepared with heated acacia were 37, 39.7 and 32.7.

The marked increase in viscosity of the mucilage made from heated acacia instigated experiments to determine what effect varying degrees of heat with varying time periods had on powdered acacia. Thirty-five-gram samples of powdered acacia were heated at 40° and 75° C., respectively, for two days; other experiments were heated at 100° C. for four, eight, sixteen, twenty-four, forty-eight and seventy-two hours, respectively. Mucilages were then prepared from the above heated acacia by adding sufficient water to make 100 cc.

The following results were obtained by using the previously described flow test at room temperature:

VISCOSITY OF MUCILAGE OF ACACIA.

DEGREE AND LENGTH OF TIME OF HEATING POWDERED ACACIA.

	Sample No.	*Control* made without.	40° C. for 2 days.	75° C. for 2 days.	100° C. for 4 hrs.	100° C. for 8 hrs.	100° C. for 16 hrs.	100° C. for 24 hrs.	100° C. for 48 hrs.	100° C. for 72 hrs.
No. of seconds required to flow from upper to lower mark of pipette	1	240	300	445	312	374	494	587	741	1480
	2	253	275	450	292	366	509	523	794	1170
	3	227	293	325	274	302	603	489	655	1065
Average		240	289	407	293	347	535	533	730	1228
Comparison with water (÷ 20)		12	14.5	20.3	14.5	17.3	26.7	26.7	36.5	61.4

The above table indicates the exceptional increase in viscosity of Mucilage of Acacia upon prolonged heating of the acacia. Maximum viscosity was obtained by heating at 100° for three days.

It was desirous to know what effect continued heat had upon normal U. S. P. Mucilage of Acacia. Samples of the mucilage were placed in Erlenmeyer flasks provided with stoppers in which glass tubes projected for reflux purposes. These experiments were placed on the steam-bath and heated for 4, 8, 16 and 24 hours, respectively, and then allowed to cool. These experiments did not materially change the viscosity of the mucilage and were comparable to the unheated normal mucilage.

PHYSICAL AND CHEMICAL VARIATIONS IN HEATED POWDERED ACACIA.

Samples taken from three different lots of acacia were dried over sulphuric acid in vacuo for six weeks. These samples lost on an average 6.8%, representing the actual moisture present.

Acacia heated at 100° C. for twenty-four hours lost 9.2% of its weight. This amount is 2.4% in excess of the moisture content and probably is due to a chemical change taking place at 100° C. The oxidizing ferment in acacia is eliminated by heat of 100° C.

The "United States Dispensatory" states that upon "prolonged heating of the dried gum, arabic acid is changed to metarabic acid. Sulphuric acid will also change arabic to metarabic acid."

Thirty-five-gram samples of powdered acacia were treated with 7 cc. sulphuric acid, 70 cc. alcohol and 14 cc. water and allowed to stand one day. The residue was washed with alcohol and water and filtered on a suction filter. The precipitate was dried and then water was added to it. Thirty-five grams of the above treated acacia dissolved in water to 200 cc. (two times the U. S. P. formula) produces a thick opaque mucilage resembling that of starch paste.

Since prolonged heating of acacia produces metarabic acid with the resulting thick mucilage of acacia, and the direct chemical change of arabic acid to metarabic acid with sulphuric acid with the production of a thick mucilage from the acid treated acacia, it is possible that the increased viscosity of the mucilage made from heated acacia is caused by the formation of metarabic acid.

SUMMARY.

1. Heat applied to powdered acacia increases the viscosity of the mucilage. Prolonged heating at 100° C. produces maximum viscosity.

2. Heat applied to the mucilage of acacia does not thicken the mucilage.

3. Volatile matter other than moisture is lost at 100° C. This indicates a chemical change.

4. Metarabic acid is formed upon heating powdered acacia.

5. Upon preparing a mucilage from acid treated powdered acacia a very thick mucilage is obtained.

6. Statements No. 4 and No. 5 may indicate that the thick mucilage obtained with heated powdered acacia is due to the change of arabic to metarabic acid.

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THE MARKET QUALITY OF PHARMACEUTICAL RAW MATERIALS.*

BY GEORGE E. ÉWE.

It has been aptly said that adulteration of raw materials offered to the pharmaceutical industry is a "dead issue," and this does appear to be mainly true in so far as wilful adulteration is concerned. Yet much remains to be done to eliminate minor defects in supplies of raw materials and to assure uniformity in successive supplies of certain of these materials.

The raw materials examined in the Laboratories of the Tailby-Nason Company, Boston, Mass., during the past several years presented a goodly proportion of defects, aside from divergences from standard due to natural variation in proximate constituents; approximately 1.5% of the items being deficient in some way.

While this proportion of defects may seem excessive to the uninitiated the actual conditions are far more encouraging, since most of the defects noted were

* Scientific Section, A. PH. A., Baltimore meeting, 1930.

of a comparatively minor character. The work covered routine chemical examinations of samples of about 3200 shipments of raw materials and since these materials were received from an extremely large number of different representative American sources, the results of the work would seem to be somewhat indicative of the practical chemical quality of raw materials being offered in the market.

On the whole, from a practical viewpoint, the quality of raw materials is quite satisfactory in general and shows great improvement over the conditions existing some years ago.

However, the label of a raw material does not always precisely indicate the identity, strength and purity of the material and laboratory examination must not be dispensed with if finished products are not to be at fault. In addition to the defective materials met with, important variations in proximate constituents of vegetable drugs and variations due to volatilization, efflorescence, deliquescence, oxidation, and so forth, need always to be guarded against. Official substances, as a rule, show a good conformance with official standards but unofficial substances show wide variations, due to the different standards of individual manufacturers. This is one of the most difficult phases to contend with in control work and improvement is badly needed. On page 416, of the April 1929 issue of the JOURNAL A. PH. A., Chairman E. N. Gathercoal, of the Committee on Standards of Drugs and Chemical Products of the A. PH. A., which has for its object the development of standards for non-official drugs and chemicals employed in Pharmacy, asks the other members of his Committee: "Is there an opportunity for this Committee to serve Pharmacy?" There seems to me to be no doubt of the need of this Committee in the interests of Pharmacy. There is much to be done in the direction of securing uniformity in the purity and strength of many raw materials which are widely used but of insufficient importance for official recognition. Some of the items in this present article illustrate the need for work of Prof. Gathercoal's Committee. Incidentally, certain items may be of interest to the U. S. P. and N. F. Revision Committees.

In former years many dealers frequently neglected to take advantage of the prestige conferred by the use of official quality designations on even strictly official materials. Even now, occasionally, strictly official materials bear no quality designations. For instance, a lot of "mercurous chloride, mild" with no quality designation was strictly U. S. P. in quality. The label was printed wholly in English but with metric equivalent of avoirdupois weight. Possibly, this form of labelling had been adopted in order to facilitate marketing in other countries besides the United States, but even then it would seem desirable to have included some form of quality statement on the label. More often, when official substances are not designated "U. S. P." or "N. F." they show minor deviations from standard. In several instances, materials specified as "U. S. P." or "N. F." have proven distinctly sub-standard and this practice was not confined to dealers possessing meagre testing facilities. In some cases, full price was charged for a distinctly inferior product; needless to say, there is strong objection to this, but of more importance is the objection from the standpoint of the composition and legal labelling of the finished product in which it finally appears.

The following items detail the defects and variations met with which it was judged might be of interest to those concerned in pharmacy in general. It is

hoped that these items may be of particular assistance to other laboratories engaged in testing similar materials and that this paper may be instrumental in inducing these other laboratories to reciprocate with contributions of a like nature.

Acacia, Powdered.—One lot was musty.

Aloes, Cape, Powdered.—The 2 lots examined assayed 66.7% and 71.3% water-soluble matters, 3.3 and 3.4% ash, and 5.9% and 6.9% moisture, respectively: both were within the U. S. P. requirements of 50% water-soluble matter, 4% ash and 10% moisture.

Ammon. Hypophos. N. F. V.—Was a mass of loose, sticky crystals assaying only 90.6% absolute salt, due to excess water, the N. F. requiring 97.5% absolute salt. Was N. F. in other respects.

Antimony, Sulphurated, N. F. IV.—Assayed 54.7% Sb. (N. F. requires 45%); gave heavy precipitate in test for sulphates; strong turbidity in test for Calcium; gave 12% insoluble matter (N. F. requires 4%); gave 1.3% ash from insoluble matter (N. F. requires 0.2%). It was otherwise N. F. A lot marked "Antimony Sulphide, Golden, Antimonic," contained sulphate, assayed 46.6% metallic antimony, 28.2% insoluble matter and was otherwise N. F. IV. Another lot of "N. F. IV" material gave slight precipitate in test for calcium, a heavy precipitate in test for sulphate; aqueous extract acid instead of neutral; 3.7% insoluble in hydrochloric and tartaric acids; unweighable ash from insoluble matter from hydrochloric and tartaric acid treatment; assayed 68.44% antimony; answered other N. F. IV tests.

Asafœtida, Powdered.—U. S. P. requires 50% alcohol-soluble extract and not more than 15% acid-insoluble ash. In the following list of assays on various lots the first figure refers to percentage of alcohol-soluble extract, and the second, where given, refers to acid-insoluble ash: 53.8; 56.6—11.2, 54.2—26.8; 51.0—18.1; 56.6; 59.5—11.3; 52.6—3.0; 39.2—3.4; 35.2; 43.3—6.4; 58.8—14.3; 48.8—7.2; 54.5—13.2; 54.1; 58.0; 49.0; 62.4; 54.1 and 58.0. In general, all other U. S. P. tests were complied with.

Belladonna Leaves.—Lots of powdered "herb" yielded 0.386, 0.365, 0.365, 0.565, 0.53 and 0.555% alkaloids. Lots of "granulated" "herb" yielded 0.506; 0.52; 0.565 and 0.52% alkaloids.

Blaud's Mass, Powder.—Varies according to source of supply in strength and color. Various lots yielded the following, in grams of $FeCO_3$ on the basis of 5 grains of the powder: 0.0898; 0.0831; 0.0812; 0.091; 0.078; 0.094; 0.0615; 0.0812; 0.0619; 0.0910; 0.15. Colors noted in various lots were yellow, buff, dark sage-green and dark umber.

Blood Root.—Three lots assayed: 2.68%, 5.20% and 3.07%, respectively, of total alkaloids. Arbitrary standard: 2.5%.

Blue Cohosh Root.—Two lots assayed 27.45% and 14.8%, respectively, of acid-insoluble ash; whereas the N. F. permits only 6%.

"Borax, Powd., not U. S. P., 99½% Pure."—This is a specimen of accurate labelling. It answered all U. S. P. tests with the exception of a suggestion of discoloration in the test for heavy metals in acid solution but no turbidity or precipitate when the sample was trebled. It also showed a practically negligible excess of arsenic. Another sample of powdered borax assayed 59.07% anhydrous salt (U. S. P. required 52.32–54.92%).

Boric Acid, Powdered.—Three lots marked "99.5–100%" gave decided but quantitatively negligible turbidities in U. S. P. test for "insoluble matter." The separated insoluble matter gave a weak calcium reaction and a strong sulphate reaction. These 3 lots were otherwise U. S. P.

Broom Tops.—Great difficulty has been experienced in obtaining N. F. quality in respect to color (green), taste (bitter); ether-soluble alkaloidal content has also been low. Various lots gave following results: "N. F. Powdered" was grayish brown, bitterish and assayed only 0.117% alkaloids; brown, and not bitter; brown, hardly bitter, assayed only 0.066%; greenish, very bitter, 0.63%; brown, scarcely bitter, 0.09%; green, very bitter; greenish, bitter, 0.3%; dark green, very bitter, 0.77%. In former years it was not difficult to obtain alkaloid content of 0.67–1.2%.

Caffeine.—Shows a tendency toward low water content. Various lots have shown 4 6, 6, 5.8, 5.5, 6 and 3% water. U. S. P. requires not more than 9%. All lots were otherwise U. S. P.

Calabar Beans.—One lot of powdered drug assayed 0.22% ether-soluble alkaloids. Another lot assayed only 0.105%. Arbitrary standard: 0.15%.

Calcium Bromide.—Two lots of "U. S. P." salt gave brown color in test for bromate.

Calcium Lactate, Powdered.—Most lots of "U. S. P." quality give distinct odor in test for volatile fatty acids.

Calcium Sulphocarbolate.—A lot of powdered salt showed 5 molecules of water ("U. S. Dispensatory" gives 1 molecule).

Camphor.—Two lots marked "U. S. P. except melting point" were strictly U. S. P., even to M. P.

Catechu, Gum.—Two lots assayed 39.5% and 73.0% alcohol-soluble, extractive and answered all other U. S. P. requirements for Gambir (U. S. P. requires 60% alcohol-soluble extractive).

Cerium Oxalate.—Two lots were overstrength due to loss of water, assaying equivalent of 108.4 and 110.4%, respectively, of salt with 10 molecules of water.

Cinchona, Red.—The one lot examined assayed 6.2% total alkaloids (U. S. P. requires 5%).

"Cinchonidine Sulphate, U. S. P."—Contained 14.8% water whereas the U. S. P. allows only 12%. The paper liner of the container was damp and the salt damp and compact.

Colchicum Corm.—Three lots of "granulated, U. S. P." yielded 0.36%, 0.40% and 0.35%, respectively, of colchicine. One lot of "Powdered U. S. P." assayed 0.51%. All samples within the U. S. P. standard of 0.35%.

Colchicine.—Two lots gave test for chloroform but since the loss in weight at 110° C. was only 1.5 and 2.4% in the respective lots the amount of chloroform was negligible. All other U. S. P. tests were complied with.

Cubeb Berries.—Two lots showed 17.1 and 13.8%, respectively, of volatile ether-soluble extractive (U. S. P. standard is 10%).

Culver's Root.—One lot yielded 28.1% acid-insoluble ash whereas the N. F. permits only 6%.

Euphorbia.—One lot of "Granulated, N. F." showed 15.0% acid-insoluble ash; the N. F. limit being 3%.

Ferrous Bromide.—One lot assayed 78.0% absolute salt. This is equal to 91.0% with 2 molecules water or 117.0% with 6 molecules. "P. W. R. Manual" gives ferrous bromide content of 85.69% and states it is a reddish powder. The U. S. Dispensatory gives "yellowish" as color. This lot was a reddish powder. Two other lots from the same source assayed 100.4 and 96.3%, respectively, calculated with 2 molecules of water.

Ferrous Sulphate, Dried, U. S. P.—The numerous lots examined ranged between 84.8 and 89.0 anhydrous salt, all above the required 80%.

Fringe Tree Bark.—Seven lots of "granulated, N. F." yielded 47.2, 39.0, 46.2, 38.8, 47.2, 41.5 and 48.9%, respectively, of extractive soluble in 70% alcohol; all above the required 25%.

Gamboge, Powdered.—The 2 lots examined yielded 85.4 and 87.8%, respectively, of alcohol-soluble extractive; both above the required 65% (U. S. P.).

Gentian Root.—Two lots of "granulated U. S. P." yielded 36.4 and 44.4%, respectively, of water-soluble extractive; the U. S. P. requiring 30%. One lot was low, namely, 27.2%.

Jamaica Ginger.—Three lots of "powdered, U. S. P." yielded 5.4, 6.4 and 6.8%, respectively, of non-volatile, ether-soluble extractive; the U. S. P. standard being not below 2%.

Gold Tribromide.—One lot contained considerable gold in metallic condition.

Guaiac.—"Powdered" lot assayed 25.1% alcohol-insoluble matters: "Powdered N. F." lot assayed 27.15% alcohol-insoluble matter; lot marked "Powdered, 19.9% alcohol-insoluble" assayed 27.3% alcohol-insoluble matter; two lots marked "Powdered" yielded 27.8% and 23.0%, respectively, of alcohol-insoluble matter; the N. F. permitting only 15%.

Henbane.—Eight lots of granulated drug assayed 0.099, 0.071, 0.102, 0.104, 0.0658, 0.0937, 0.0995 and 0.078%, respectively, of alkaloids. Three lots of powdered drug assayed 0.105, 0.130 and 0.121% alkaloids, respectively. The U. S. P. requires at least 0.06%.

Hydrastis.—Six lots of "U. S. P. Granulated" drug assayed 2.69, 3.12, 2.76, 2.82, 2.56 and 2.12% ether-soluble alkaloids. The U. S. P. requires 2.5%.

Hypophosphorous Acid.—Always shows presence of calcium. Average of several lots was 1.42% calculated as calcium hypophosphite. A limit should be established, or at least the presence of calcium declared as a guard against incompatibility in pharmaceutical work.

Ignatia.—A lot of granulated drug assayed 2.70% total alkaloids, above the N. F. requirements of 2%.

Ipecac.—Eight lots of "U. S. P. Granulated" drug assayed 1.99, 2.07, 2.10, 2.15, 2.02, 1.987, 2.37, 2.29% ether-soluble alkaloids. Six lots of powdered "U. S. P." drug assayed 2.01, 2.33, 2.29, 2.465, 2.59 and 2.48%, respectively. The U. S. P. requires 1.75%.

"Iron Arsenated."—Five lots from various sources contained 25.4 and 43.3%; 25.7% and 24.9%; 30.06% and 46.3%; 26.4% and 50.1% and 27.3% and 48.9%, respectively, of total iron and arsenic oxide. "P. W. R. Manual" gives "about 30% Fe and about 40% Arsenic Oxide" for this product.

Iron, Reduced.—All lots have been satisfactory in iron and sulphide content. One lot, as stated on the label, contained excessive sulphide. This product shows great improvement in sulphide content.

Iron Iodide.—Three lots consisted of dry hard lumps and assayed 83.1%, 81.5% and 80.9% of absolute ferrous iodide, respectively, conforming with 4 molecules of water of crystallization which calculates to 81.13% absolute salt. One lot consisting of 2 glass-stoppered bottles was in a soft mass and assayed only 37.3% and 43.9% absolute salt, respectively. Since the stoppers had been dipped in sealing wax it is evident that this low-strength material had been in this condition previous to sealing. Another lot was in the form of soft, damp lumps and assayed only 73.1%.

Iron Glycerophosphate, N. F. V.—Was not soluble in 2 parts of water and contained considerable phosphate.

Iron Pyrophosphate.—Two lots of "Soluble Scales" contained 13.7 and 13.1% total iron, the N. F. requiring not less than 10%. Both contained excess of phosphate, but were otherwise N. F.

Jalap.—Two lots of "U. S. P. Powdered" drug contained 8.3 and 9.55%, respectively, of total resins, well within the U. S. P. requirement of 7%.

Lead Acetate.—One lot of "U. S. P. X Powdered" was slightly over strength due to loss of water of crystallization. It contained 91.54% anhydrous salt, whereas the U. S. P. limits are 85.31 to 89.57%. It was otherwise U. S. P.

Lithium Salicylate.—One lot gave a slightly acid solution when completely dissolved, but when added to water containing a few drops of Phenophthalein T. S. the yet undissolved particles were colored pink, evidently indicating that complete combination of the lithium base used in making the salt had not been effected before the salt was dried.

Lupulin.—One lot was low in ether-soluble extractive, assaying 57.5%, whereas the N. F. requires 60%.

Lycopodium, U. S. P.—Gave strong reaction for starch although the proportion was negligible. It was otherwise U. S. P.

Magnesium Oxide.—A lot of "Heavy U. S. P." was pinkish in color due to excessive iron; otherwise U. S. P.

Manganese Chloride, Crystals.—Assayed 99.0% $MnCl_2$ plus 4 molecules of water.

Manganese Peptonate.—Assayed 3.35% metallic manganese. "P. W. R. Manual" specifies 3% for this type of product.

Manganese Sulphate, Crystals.—Gave 0.01 Gm. of residue in test for other salts and alkalies, whereas the N. F. IV allows only 0.005 Gm. It was otherwise N. F. IV.

Mercury Oxide, Yellow, Wet Process, U. S. P.—Was alkaline to litmus but the blue litmus became neutral upon dipping into water. The oxide was not alkaline to phenolphthalein when 1 Gm. was boiled with 5 cc. of water; but was alkaline to methyl red, and in the latter case was rendered acid by 1 drop of tenth-normal sulphuric acid per Gm. of oxide. Evidently the degree of alkalinity was negligible. The oxide assayed 99.8% and was otherwise U. S. P.

Nickel Bromide.—Assayed 102.9% calculated with 3 molecules of water as suggested by "P. W. R. Manual."

Nutmeg.—One lot of powdered drug yielded 40.6% non-volatile ether-soluble extractive, The U. S. P. required 25%.

Nux Vomica.—Two lots of powdered drug assayed 2.52 and 2.49%, respectively, of total alkaloids. Two lots of ground drug assayed 2.54 and 2.76%, respectively, of total alkaloids.

Oleoresin Capsicum.—Formerly was supplied brown in color. Market offerings are now usually brilliantly red in color making it imperative to re-process it before it can be used in established pharmaceuticals.

Peppermint Leaves.—One lot yielded 6.9% acid-insoluble ash. The official allowance is 2%.

Podophyllum Resin, Powdered.—Is generally satisfactory. Various lots have yielded the following percentages for chloroform-soluble and for ether-soluble: 62.2 and 77.9; 66.8 and 61.7; 65.6 and 80.6; 68.5 and 73.8; 66.1 and 63.6; 75.7 and 83.9; 62.8 and 78.7; 63.2 and 84.6; 61.8 and 79.8; 64.6 and 84.3; 64.2 and 73.6; 64.4 and 75.4; 63.8 and 76.3; 61.8 and 79.8; 64.6 and 84.3; 64.2 and 73.6; 64.4 and 75.4. The U. S. P. requires 65% and 75%, respectively. Ordinarily, a product of light color and low density more closely conforms to the U. S. P. These lots were otherwise U. S. P. in quality.

Potassium Bromide, Gran. U. S. P.—Assayed practically 100% and was free from Bromate and answered all U. S. P. requirements. After storage in a compressed paper drum for 6 months it developed a reddish brown tint throughout its interior portions evidently due to the liberation of free bromine.

Quinine Arsenate.—Varies greatly in composition. Five lots gave following figures for anhydrous quinine alkaloid and total metallic arsenic: 79.3 and 8.9; 79.8 and 9.45; 75.6 and 12.62; 77.2 and 12.06; 78.6 and 11.44. A salt of 8 molecules of water calculates to 69.38% anhydrous alkaloid and 8.02% metallic arsenic.

Quinine Hypophosphite.—Two lots assayed 82.0 and 80.0%, respectively, of anhydrous quinine alkaloid. A lot marked "N. F. Powder" assayed 87.0% anhydrous alkaloid. Two molecules of water calculates to 76.0% anhydrous alkaloid.

Quinine Sulphate.—A lot received in a tinned iron container showed the inner surface of the lid covered with droplets of moisture. This was not due to excessive water in the salt as it assayed only 12.1% water whereas the U. S. P. permits 16.2%. It was concluded that the package had been subjected to excessive heat.

Red Gum, Powdered, True.—Yielded 83.4% cold water-soluble extractive and 1.3% ash. This was a good material. In former years the residue left after exhaustion with water which still resembles good Red Gum in appearance was occasionally offered.

Rhubarb.—Fifteen lots of granulated drug yielded 42.4, 46.1, 38.0, 56.0, 43.1, 42.2, 44.8, 42.2, 34.4, 50.2, 42.4, 47.8, 44.3, 45.6 and 47.1%, respectively, of diluted alcohol-soluble extractive. One lot of powdered drug yielded 43.8%. The U. S. P. required at least 30%.

Senega.—Three lots of "U. S. P." powdered drug yielded 7.9, 9.2 and 3.4%, respectively, of acid-insoluble ash. A lot of ground "U. S. P." drug yielded 3.7% acid-insoluble ash. The official allowance is 2%.

Sodium Bromide, U. S. P. X.—Assayed only 87.8% and gave bromate reaction. It was otherwise U. S. P. This salt was from a German source.

Sodium Citrate, U. S. P. 8th, Gran.—Was U. S. P. 8th in quality and iron content was well within the U. S. P. 8th allowance (U. S. P. time limit test for iron showed positive after $1^1/_2$ hours but not after $^1/_2$ hour). However, this salt developed a faint pinkish tint after 3 months' storage in a pasteboard container so that it would seem that even a smaller proportion of iron than permited by the U. S. P. 8th may cause discoloration if this salt is not preserved in well-closed containers.

Sodium Hypophosphite.—Two lots were high in strength, namely, 110.4 and 107.6% crystallized salt, respectively, due to efflorescence. They were otherwise N. F.

Sodium Nitrite.—Is almost invariably above U. S. P. requirements of 95%. However, one lot was quite damp and assayed only 92.6%.

Sodium Phosphate, Dried.—Moisture content of numerous lots ran from practically anhydrous to 1 or 2% of water. Three lots contained excessive water, namely, 7.2, 11.1 and 8.1%, respectively.

Sodium Succinate.—6 molecules of water calculates to 59.98% anhydrous salt. The various lots of crystallized salt examined contained 57.58, 57.38, 57.7, 60.3, 59.7, 58.2 and 57.6% anhydrous salt. The powdered salt varies greatly, the various lots which were examined showed 58.0, 56.6, 70.9, 61.4, 58.4 and 57.3% anhydrous salt.

Squill.—One lot of ground drug showed numerous shining, transparent platelets of natural gypsum. However, the proportion present was less than 1% so that the strength was not materially affected.

Strontium Bromide, "Dried," Powdered.—Although invariably labelled "Dried" the materials were really only partially dried. Fully crystallized salt calculates to 69.6% anhydrous salt. The various lots examined contained 75.4, 76.5, 80.7, 85.4, 84.3, 77.1, 78.0, 76.6, 79.1 and 77.7% anhydrous salt. One lot labelled as "Dried" actually contained 99.7% crystallized salt (6 molecules water).

Strontium Peroxide.—One lot contained only 66.0% of Strontium Peroxide. The "N. N. R. 1924" required 84%.

Strontium Salicylate, U. S. P.—Is usually quite acid due to excess salicylic acid. One lot had acidity to phenolphthalein corresponding to 0.73% free salicylic acid.

Strychnine Arsenate.—Varies widely in composition. The 4 lots examined showed anhydrous strychnine alkaloid and total metallic arsenic as follows: 66.8 and 15.5; 70.5 and 21.62; 67.0 and 15.88 and 73.0 and 17.4%, respectively. A salt with 2 molecules of water calculates to 65.25% anhydrous Strychnine alkaloid and 14.64% total metallic arsenic.

Strychnine Hypophosphite.—Three lots examined assayed 73.3, 79.5 and 79.5%, respectively, of anhydrous Strychnine alkaloid. "P. W. R. Manual" gives 76.6% for 2 molecules of water.

Strychnine Phosphate.—Assayed 75.0% anhydrous Strychnine alkaloid and so conformed with 2 molecules of water which calculates to 71.37%.

Valerian, Powdered.—Two lots contained 20.8% and 16.2%, respectively, of acid-insoluble ash, and so failed to conform with the U. S. P. requirement of not more than 10%.

Zinc Bromide.—The three lots examined assayed 99.8, 97.5 and 98.3% anhydrous salt, respectively.

Zinc Oxide.—A lot of "U. S. P. Powdered" gave a bluish ferrocyanide test and so contained iron in excess of U. S. P. allowance but excess must have been small as the alkaline sulphide precipitate was white. This lot assayed 99.8% oxide, without igniting sample and was otherwise U. S. P.

Zinc Phosphide.—While in former years it was possible to obtain this material with phosphorus content around 22%, the various lots examined were much lower, *viz.:* 11.17, 11.1, 14.4, 13.9, 12.9, 13.8, 11.74 and 13.03%, respectively. "Mercks 1907 Index" gives Zn_3P_2 as formula. "P. W. R. Manual" gives 24.04% Phosphorus and "U. S. Dispensatory," 21st edition states "Theoretically each grain—contains nearly $^1/_4$ grain of Phosphorus."

Zinc Sulphocarbolate.—One lot was a solid lump the shape of container but excess moisture was not found as an assay of 99.3% salt with 8 molecules of water was obtained.

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EGYPTIAN PHARMACY.

The Indian and Eastern Druggist speaks of Egypt as a cosmopolitan country and it follows that in the larger cities such as Cairo, Alexandria and Port Said, there are English, French, Italian and Greek pharmacists, besides Egyptian, Syrian and Arabic.

A certificate to practice pharmacy in Egypt is granted if the diploma of the applicant is accepted by the Minister of the Interior. A pharmacist must be a graduate of a recognized school of pharmacy and also be prepared to pass a government examination as a test of proficiency. There are two certificates granted, one that of the "pharmacist," and the other "assistant pharmacist." The requirements for the "assistant pharmacist" are not so different from those in this country. The pharmacist does a great deal of chemical and bacteriological analysis and is in close coöperation with the medical profession. There seems to be a mutual regard by the members of the professions.

The Indian and Eastern Druggist also points out that there is considerable traffic in narcotic drugs. While in most instances this traffic is carried on by others than pharmacists there are a few who lend themselves to such business. The Narcotic law is quite stringent, but it seems to be a very difficult matter to make it effective. Quite recently trading in narcotics has been investigated.

RED-SQUILL POWDERS AS RATICIDES.

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Red-squill bulbs grow on the coast of Southern Italy, Sicily and Sardinia, and elsewhere along the Mediterranean Sea. They have been cultivated in this country. The bulbs are pear-shaped, usually from three to six inches in diameter, and weigh from 300 to 2000 grams. (Plate I.) They are composed of closely overlapping scales. The outer scales are dry, brittle and reddish brown in color;

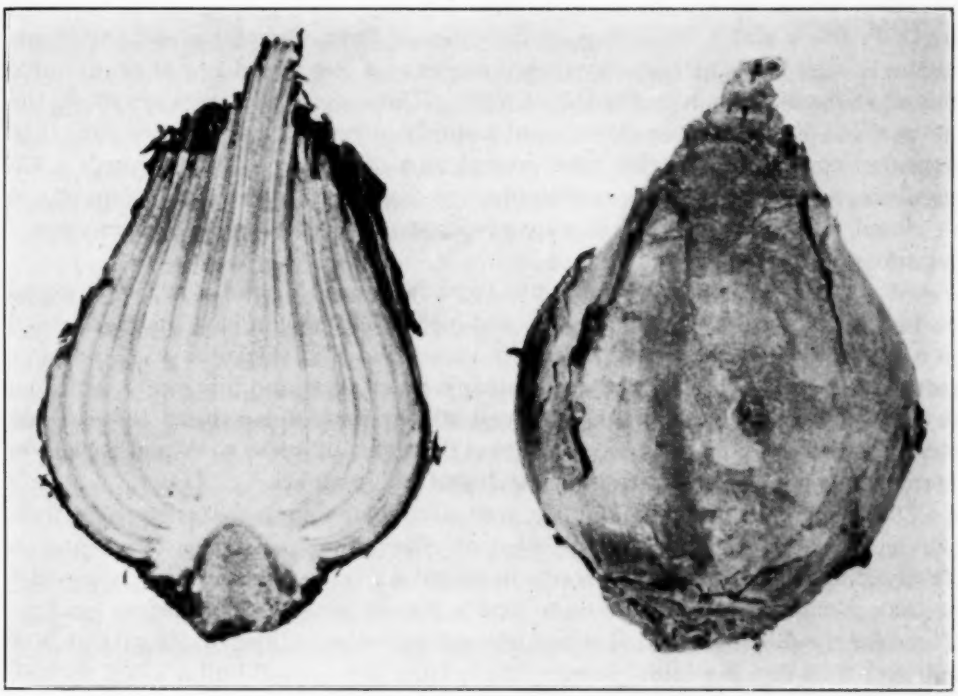

Plate I.—Red-squill bulb (*Urginia maritima*).

the inner scales vary from yellowish white to cherry or mahogany. White squill, which is official in various pharmacopœias and is used in medicine, does not kill rats.

A number of chemical investigations have been conducted upon red squill and four glucosides isolated, which are supposed to be the active principles. Raphides of calcium oxalate are responsible for the local irritant action of squill. In connection with these investigations, 75-gram portions of red-squill powder were extracted in Soxhlet thimbles with water, 95 per cent ethyl alcohol, acetone and chloroform until the extracts were colorless. The solutions were concentrated in a current of warm air, and the resulting solid extracts dried in an electric oven at 80° C. and finally in a vacuum desiccator over calcium chloride. The residues

were removed from the thimbles and dried at 80°. The extracts and residues were fed to rats to determine the toxicity. It was found that alcohol extracted one-third of the toxicity of the original powder; and that the toxic principle was not removed by water acetone or chloroform.

Another 75-gram portion of red-squill powder was exhausted by warming on a steam-bath with 800 cc. of water. Twice a day the solvent was removed in a Buchner funnel and a fresh charge of water added. After twenty-two days, extraction appeared complete. The aqueous solution was concentrated to a solid extract. The residue was a dark brown, tough sheet, heavily laden with glittering calcium-oxalate crystals. The extract and the residue were not toxic, showing that the active principle had been destroyed by this treatment.

In a preliminary series of experiments, twenty-four powders were prepared by O. F. Black and J. W. Kelley, of the Office of Drug, Poisonous and Oil Plants of the Bureau of Plant Industry from samples of a 900-pound keg of squill bulbs imported from Sardinia in the fall of 1923. The outer husks were removed, the bulbs sliced, dried in a current of air at a slowly increasing temperature until they appeared constant in weight, then ground in a drug mill to pass through a 40-mesh sieve. These powders, containing 1 to 2 per cent of moisture, were stored in closed vials. Some powders were prepared from single bulbs, others from a mixture of a number of bulbs.

A ton of squill bulbs was obtained from Sardinia in the fall of 1925 and stored at 4° to 5° C. until used. Bulbs were cut into slices one-half inch thick and dried in a commercial steam dryer. Slices one-quarter inch in thickness exuded a large quantity of mucilaginous juice, facilitating fermentation and materially retarding drying. In general, the bulbs contained 80 per cent of moisture. After these were dried, the residue was ground to pass through a 40-mesh sieve and packed in hermetically sealed containers or in pasteboard mailing tubes.

Powders made at 80° to 100° C. were more toxic than powders prepared from the same lot of original material dried at either lower or higher temperatures. Drying the chopped mixture directly in an electric oven gave as toxic a product as that obtained after allowing it to dry in the air for some time before heating. Three large squill bulbs dried separately gave powders killing white rats at 500, 500 and 2500 mg. per kilo; powders made from three small bulbs killed at 250, 250 and more than 5000 mg. per kilo. This shows the great variability of individual bulbs, and suggests that a number of bulbs should be mixed in the preparation of squill powder.

The bulbs having a light red or pink color were somewhat more toxic than those that were deep red. The difference in toxicity was so slight that it may be ignored in manufacturing squill powder on a large scale. Fermentation of a chopped composite to the stage at which the odor of alcohol was quite noticeable caused a loss of about two-thirds of the toxicity. Further fermentation to the stage at which the odor of acetic acid predominated caused the loss of one-third of the remaining potency.

In studying the effect of color, size, drying temperature and other conditions upon toxicity, experiments were conducted on a small scale using 100 to 200 grams of chopped squill bulbs. Based upon findings on this laboratory scale, experiments were conducted upon a semicommercial basis using 10 to 30 kilograms of

bulbs in each run. The chopped bulbs were placed in six trays (12 by 36 inches) in a dryer (25 by 60 by 80 inches) heated by closed steam coils. The temperature was kept constant within 4° or 5° C. during each run. The dried bulbs were mixed and ground in an electric mill to pass through a 40-mesh sieve. When a large lot of material was dried before fermentation had started, the same toxicity was obtained at a given temperature as in drying a small lot under laboratory conditions in an electric oven. Successive lots of material dried under essentially the same conditions gave products that were essentially identical in toxicity.

As a result of these investigations the following method for the preparation of toxic red-squill powder has been elaborated (1). It is possible that under manufacturing conditions variations in this procedure might not decrease the toxicity of the resultant product, but that question can be solved only by extended investigations under commercial conditions.

"Remove the outer dry husks from fresh red-squill bulbs obtained as soon as feasible after digging, and slice the bulbs transversely into sections one-fourth to one-half inch thick. Place the sliced composite as soon as possible in a drying oven, which has been previously heated to 80° C., and dry to constant weight at that temperature. Grind the dried material so that it will pass through a 40-mesh sieve. Pack the powder in hermetically sealed containers."

For the uniform production of red squill suitable for use as a rat poison, feeding tests are necessary upon every lot. In our investigations white or wild (brown) rats were held in cages for about a week to make the experimental animals essentially uniform. Rats weighing between 150 and 250 grams were employed. No consistent difference was found in the susceptibility of male and female rats. Animals were not given food for 18 hours, although water was offered freely. The rats were then weighed and placed in separate cages. The ordinary laboratory rat food—a mixture of $^2/_3$ whole wheat flour and $^1/_3$ whole milk powder to which one per cent of salt had been added—was passed through a 40-mesh screen. The sample of squill to be fed was thoroughly mixed with this food so that approximately 1 per cent of the animal's weight would be fed in giving the desired dose of squill. The weighed squill-rat-food mixture was placed in a glass sponge cup and inserted in the cage. The time when these cups were offered was noted and frequent inspections were made to determine the time at which all food had been consumed. The dish was removed after about four hours and any uneaten food weighed. The day following the feeding of a squill bait, rats were returned to the regular laboratory diet but kept in individual cages for five days. All deaths occurring within five days in animals that had shown symptoms of squill poisoning (the most characteristic of which if a continued gyration on the long axis) were attributed to squill. Rats readily consumed baits containing as much as 40 per cent of squill powder. The presence of calcium oxalate raphides did not deter a starved rat from eating these baits. A number of animals were fed each dose. The quantity of squill producing death in all, or practically all, rats within five days was selected as the Minimum Lethal Dose. The Minimum Lethal Doses varied greatly according to the method of preparation. The most toxic powder made in this work had a Minimum Lethal Dose of 150 mg. per kilo. In general the lethal dose was about 250 mg. per kilo.

A number of previous experiments have shown that a hungry rat will consume

one per cent of its body weight of food within 15 to 20 minutes. If the minimum lethal dose of red-squill powder is 1000 milligrams per kilogram and a bait is prepared containing 10 per cent of squill, the consumption of 1 per cent of its body weight will cause death. In case the lethal dose is less than 1000 milligrams per kilogram, a corresponding decrease in squill content may be made. It is suggested that squill baits be prepared and used at this uniform toxicity. Tests have shown that wild rats and white rats show practically identical sensitivity to squill. The average weight of the wild rats used in this investigation was 30 grams (10 ounces). Such a rat would require 3 grains, or $^1/_{10}$ ounce, of this standard squill bait. In these investigations rats were found to eat several times this quantity of food.

Cats, dogs, chickens, pigeons, pigs, woodchucks, prairie dogs and pocket-gophers refused to eat baits containing 10 per cent of squill powder (100,000 parts per million). Many cats refused to eat lean hashed meat containing 10 to 25 parts of squill powder per million, or consumed this food very slowly. When administered in gelatin capsules or by stomach tube, prompt and thorough emesis was produced. No other effect was noted. From these feeding and [illegible] experiments, it was concluded that baits containing 5 to 10 pe[illegible] powder either will not be eaten by animals other than rats or w[illegible]ce emesis with direct removal of the bait.

CONCLUSIONS.

(1) A method of producing uniformly toxic red-squill powders has been developed.

(2) The usual lethal dose of these powders is approximately 250 milligrams per kilogram when fed to white or wild rats.

(3) No serious injury to pigs, cats, dogs, chickens, pigeons or other domestic animals should be anticipated when red-squill baits are exposed to kill rats.

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THE LEAF OILS OF WASHINGTON CONIFERS: I. INTRODUCTION.*

BY ARNOLD J. LEHMAN AND E. V. LYNN.

Very few volatile oils from the leaves of conifers growing in the state of Washington have been examined completely. Of oils from the twenty or more species, five have been studied more or less thoroughly but, in order to give us complete knowledge of the composition, much more work needs to be done. Four other oils have been prepared and their common constants determined, although little is known of the constituents. No attempt has been made to prepare oils from the other species, which present, therefore, a virgin field for the phytochemist.

It seemed desirable and interesting to prepare and investigate all of these oils in a systematic manner. The use in industry and medicine of various "pine oils" is well known. Some of these are known to possess peculiar properties which fit them for the applications made, but in most of them the composition, properties

* Scientific Section, A. PH. A., Rapid City meeting, 1929. No discussion.

or even source is unknown. Furthermore, many of the coniferous trees might furnish oils which would be of much greater value were they examined carefully.

As a start in this direction, the logical procedure would be to prepare the products and determine their composition. It was with such an idea in mind that the present series was started. It is strictly confined to the "pines" of Washington. In this paper we propose to present in abstract the chemical and physical work which has already been done; subsequently we will report our work on each species.

The following list, adapted from Piper, "The Flora of Washington," gives the coniferous species growing in the state.

Taxus brevifolia
Juniperus communis sibirica
Juniperus occidentalis
Juniperus scopulorum
Chamaecyparis nootkatensis
Thuja plicata
Pinus monticola
Pinus albicaulis
Pinus ponderosa
Pinus contorta
arix lyallii
Larix occidentalis
Abies nobilis
Abies lasiocarpa
Abies amabillis
Abies grandis
Pseudotsuga mucronata
Tsuga mortensiana
Tsuga heterophylla
Picea sitchensis
Picea engelmanni

The oils from eight of them have been prepared and more or less completely examined.

JUNIPERUS COMMUNIS.

In spite of the fact that an oil from the fruit is described by the U. S. P. and that products from the wood have been frequently studied, little is known of that from the leaves. Hansen and Babcock (3) obtained 0.15 to 0.18 per cent of an oil having a yellow color, a juniper odor, and a specific gravity of 0.8531. Pigulevski (17) received 0.44 to 0.58 per cent of oil having the following constants: $d_{15.6}$ 0.9258; saponification number 55.33; acid value 10.71. Southall (11) obtained a product from the whole shrub which contained no aldehydes, phenols or ketones. It had d 0.854, $[\alpha]_D$ $-1.00°$, n_D 1.4711, acid value 0.19, ester value 1.15, and acetyl value 14.19. Apparently no one has yet identified any constituents.

CHAMAECYPARIS NOOTKATENSIS.

The oil from this species has been examined but once. Clark and Lucas (18) found that the air-dried leaves yielded 0.7 to 2.0 per cent of oil with a specific gravity of 0.855 to 0.888 and an index of refraction of 1.472 to 1.474. Although the boiling point ranged from 155° to 280° C., the only constituents identified were limonene, alpha pinene and cymene, with the probability that beta pinene and sabinene are also present.

THUJA PLICATA.

The leaves of this common Washington cedar furnish a volatile oil which has been investigated several times. Blasdale (2), in 1907, reported the constants as follows: $d_{15°}$ 0.8997; n_D 1.4575; $[\alpha]_D$ + 1° 45′; boiling point 150–225° C. Most of it distilled at 198–200° C. and contained thujone.

Two years later Brandel and Dewey (4) recorded the results of a rather ex-

tended investigation of the oil, which they obtained in 0.8 to 1.4 per cent yield. It had a bright yellow color and a camphoraceous odor, $d_{25°}$ 0.9305, $[\alpha]_D^{25°}$ −6.9°, acid number 0.5, saponification value 5.7, and acetylization number 6.2, corresponding to 28.5 per cent of alcohols. Alpha pinene was present to the extent of about 3 per cent, but the main body consisted of thujone, fenchone and borneol esters. A remarkable fact brought to light was that, whereas the whole oil was laevorotatory, all fractions were dextro.

The French variety yielded 1.32 per cent of oil (5) containing thujone. It had a specific gravity of 0.9056 at 15° C., a specific rotation of +5° 4′, an index of refraction of 1.45721, an acid value of 0.8 and an ester value of 16.9.

Rose and Livingstone (9) obtained about 1 per cent of oil, specific gravity 0.913 at 20° C., specific rotation −4.77° at 20° C., index of refraction 1.4552, acid value 0.5, ester number 2.28, acetyl number 8.8. They found 80–85 per cent of thujone, 3–5 per cent of pinene, 1–3 per cent of tanacetyl alcohol and 1–2 per cent of its acetic ester.

PINUS PONDEROSA.

In 1879 Sadtler (1) described the separation and some of the properties of a liquid, abietine, from the oil of this species. Schimmel & Co. (7) made a report on a "yellow pine oil" of commerce, but they think this was probably derived from P. palustris.

Schorger (12), in 1914, made an extensive study of oils from the leaves and twigs and also from the cones. The former was found to contain about 75 per cent of beta pinene, 7 per cent of borneol, 6 per cent of dipentene, 2 per cent of alpha pinene, 2 per cent of bornyl acetate and 3 per cent of "green oil." Miller and Lynn (14) confirmed the presence of the pinenes.

PINUS CONTORTA.

The oil from leaves and twigs of *Pinus contorta* has been examined only by Schorger (13), who reported a specific gravity of 0.8690, index of refraction 1.4831, specific rotation −17.84°, acid value 0.9, ester value 6.02, acetyl value 32.39. The yield obtained amounted to 0.234 per cent. He found present 49–50 per cent of beta pinene, 7.5 per cent of borneol, 5–6 per cent of camphene, 3 per cent of alpha pinene, 7 per cent of cadinene and 2 per cent of bornyl acetate. A trace of furfural was noted in the first distillate and the presence of methyl chavicol was suspected.

PSEUDOTSUGA MUCRONATA.

The leaves and twigs of the common Douglas fir furnish an oil which has been studied by several observers. Sweet (6) received 0.8 to 1.0 per cent of a greenish yellow oil having a lemon-like odor. This had a specific gravity of 0.8680 at 23° C., a specific rotation of −62.5°, saponification value 86.6 equivalent to 30.3 per cent of bornyl acetate, acetyl value 91.2 equivalent to 23.3 per cent of borneol. The chief terpene was camphene, and borneol was also present, but no aldehydes or free acid.

Schorger (10) obtained an average yield of 0.16 per cent of an oil with the following constants: d 0.8727–0.8759; $[\alpha]_D$ −17.02–22.17°; n_D 1.4758–1.4780; acid value 0.65–1.1; ester value 11.1–24.2. He found alpha pinene 25 per cent, beta pinene 48 per cent, limonene 6 per cent; borneol 6.5 per cent and a green oil

distilling at 125–205° C. under a pressure of 20 mm., which apparently consisted of sesquiterpenes. A trace of furfural was noted in the first runnings, but no camphene was to be detected.

Bennett (15) found that old trees growing in England gave more than ten times as much oil as young ones, his yield varying from 0.01 to 0.11 per cent. He reported specific gravity 0.876 and 0.905, index of refraction 1.4835 and 1.4717, rotation −7° and −46°, ester numbers corresponding to 21.4 and 34.5 per cent of bornyl acetate. Geraniol was separated but not entirely identified, as were also limonene, citral and alpha pinene.

TSUGA HETEROPHYLLA.

Cable (16) examined three samples of the Western hemlock oil collected at various times of the year. He obtained the following figures: yield 0.32 to 0.36 per cent; d_{15}^{20} 0.844 to 0.852; $[\alpha]_D$ −6.74 to −20°; n_D 1.4790 to 1.4840; acid value 2.5 to 3.4; ester value 6.7 to 17.0, equivalent to 2.3 to 6.0 per cent of bornyl acetate; ester value after acetylization 19.6 to 33.4, equivalent to 5.4 to 9.2 per cent of total borneol. None of the constituents were identified.

PICEA ENGELMANNI.

This species has been investigated only by Swenholt (8) who obtained 15 cc. of oil. The specific gravity was 0.895, the rotation was +1° 53′, and the saponification number was 24.15 corresponding to 8.5 per cent of ester as bornyl acetate. The oil had a strong camphoraceous odor.

From the foregoing review, it will be readily apparent that but a comparatively few species have received more than superficial attention. It would undoubtedly be of great interest to examine all of the others. It is true that the majority which have already been studied possess a certain similarity of composition, but our work to date has indicated a greater difference than is generally presumed. We have already nearly completed the investigation of four other species and expect to report on them shortly.

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PHYSIOLOGICAL POTENCY OF COMMERCIAL ERGOT PREPARATIONS.*

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In this paper Commerical Ergot Preparations will be divided into two classes, Fluidextract of Ergot and Ergot Specialties. Fluidextract of Ergot is the official preparation of the U. S. Pharmacopœia, Tenth Revision. The term Ergot Specialties includes those preparations which are aqueous or hydro-alcoholic extracts, intended for either oral or hypodermatic administration, and which are prepared by methods usually differing from that described in the U. S. P. for Fluidextract of Ergot. For obvious reasons, the names of manufacturers have been omitted from the tables, and preparations are reported only under our laboratory number.

Results shown in Tables I and II of this paper represent a nationwide survey of products in interstate and import commerce, as well as many intra-state products. These tables contain data on all samples assayed during an eight-month period and include preparations distributed by practically every manufacturer and wholesale distributor in this country, as well as a number of foreign preparations offered for importation.

All of the preparations enumerated were assayed by the U. S. P. Cock's Comb Method, using cockerels which had been previously standardized by determining the dose of a standard preparation necessary to produce a satisfactory reaction. The intensity of reaction observed during assay or standardization of birds was recorded by the use of the "number code" previously described by one of us (M. R. T.) (2).

The U. S. P. method, when properly applied has been found to be reasonably accurate in estimating the alkaloidal activity of ergot preparations, if interfering amounts of histamine are not present. Histamine interference is rarely encountered in commercial ergot preparations, because it is so unstable as to be destroyed during the first several months after manufacture (2).

Whenever difficulty was encountered in arriving at definite and concordant results by the Cock's Comb Method, or the potency of the fluidextract was found to differ appreciably from that of the standard, the assay was checked by the Broom-Clark Isolated Rabbit Uterus Method (3), as modified by Pattee and Nelson (4). The latter method measures the alkaloidal activity irrespective of any amount of histamine or other amines which might be present.

The U. S. P. X Standard Fluidextract has been shown by Thompson (5) to be somewhat unstable, and consequently of variable potency, while at the same time, that of Ergotamine Tartrate was found to be constant. To avoid confusion, the potency of all preparations in Tables I and II is therefore expressed in terms of Ergotamine base,* 0.05 per cent, or 0.5 mg. per cc., being taken as 100 per cent U. S. P. potency. The present U. S. P. Standard Fluidextract Lot No. 2160, which has replaced Lot No. 636, because of deterioration of the latter, contains this amount of alkaloidal potency, *i. e.*, 0.05 per cent of alkaloidal activity in terms of Ergotamine base (5).

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* Ergotamine Tartrate, containing 84.5% Ergotamine base.

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The results obtained are tabulated in Table I for Commercial Fluidextracts, and in Table II for Commercial Ergot Specialites.

TABLE I.—COMMERCIAL FLUIDEXTRACTS OF ERGOT.

P. C. No.	U. S. P. X., %	P. C. No.	U. S. P. X., %	P. C. No.	U. S. P. X, %
2294	240	2360	30	2478	66
2308	130	2361	200	2479	25
2311	20	2362	300	2480	133
2324	400	2365	66	2481	100
2325	200	2366	33	2482	100
2326	100	2367	25	2483	100
2328	100	2368	66	2490	133
2329	100	2378	200	2491	33
2331	133	2379	50	2502	50
2339	100	2380	120	2505	133
2340	133	2381	200	2511	150
2341	100	2382	133	2512	150
2342	200	2383	133	2513	150
2343	300	2384	200	2521	20
2344	50	2399	133	2522	25
2345	133	2405	100	2530	25
2346	200	2413	133	2531	25
2347	250	2415	100	2532	20
2348	250	2438	250	2533	20
2349	Inactive	2440	100	2534	20
2350	175	2469	133	2537	100
2354	130	2470	133	2539	100
2355	50	2471	133	2541	25
2356	100	2472	80	2542	75
2357	133	2473	250	2543	20
2358	133	2474	25	2602	50
				2635	50

TABLE II.—COMMERCIAL ERGOT SPECIALTIES.

P. C. No.	Potency, % U. S. P. X.	P. C. No.	Potency, % U. S. P. X.
2235	Inert	2372*	120% labeled potency
2246+	Approx. 33	2373	Inert
2252*	25 or 12.5 of labeled potency	2376*	50
2263*	Inert	2377*	Inert
2264	25	2401	Inert
2280*	25	2403*	20
2283*	25	2431	25% labeled potency
2297*	Inert	2506*	Inert
2303*	Inert	2598*	20
2323	Inert	2599*	20
2330	66		

* Ampul preparations recommended for hypodermic use.

DISCUSSION OF RESULTS.

Pattee and Nelson (4), Thompson (2) and Swanson (7) have shown that proper application of the methods involved in this paper provide for an estimation of the specific alkaloidal activity of ergot preparations within plus or minus twenty per cent. Sources of probable error, with methods of avoiding same, have been

explained by these investigators. In summarizing the results of Table I, therefore, it is reasonable to regard those fluidextracts containing a potency of 80 to 120 per cent as meeting the U. S. P. potency requirement. Those falling below 80 per cent are unquestionably substandard while those bearing a potency of more than 120 per cent exceed the potency requirement of the U. S. P. X.

Of a total of 79 Commercial Fluidextracts examined, twenty-seven, or approximately 35 per cent of the total number, were substandard; sixteen, or approximately 20 per cent of the number, were of U. S. P. Standard potency; and thirty-six, or approximately 45 per cent of those examined, exceeded the U. S. P. X potency requirement.

By tracing the history of these fluidextracts it was found that the majority of the samples which equalled or exceeded the U. S. P. potency requirements had not attained an age of more than one year (after manufacture, assay and adjustment). At the same time, it was observed that many of those which showed a deficiency in activity had been purchased in bulk from the manufacturer and subsequently repackaged and distributed by a firm other than the manufacturer, thereby introducing conditions such as a prolonged period of storage and an excessive exposure to air, which give rise to serious deterioration.

For the non-uniformity observed in those fluidextracts which equalled or exceeded the U. S. P. potency requirements, it is believed that faulty standardization and attempts to allow for lack of stability are largely responsible. It is possible that those fluidextracts which exhibited a potency of very appreciably more than 100 per cent at the time of this survey had been standardized by the U. S. P. Method immediately after preparation, and that non-specific amine interference had instituted an error in standardization. As shown by Thompson (2), it is possible for freshly prepared fluidextracts to contain an alkaline-water-soluble fraction (consisting principally of histamine) in sufficient amounts to greatly interfere with the measurement of alkaloidal activity by the Cock's Comb Method. This interference is destructive rather than constructive, and results in the manifestation of an *apparent* potency which is lower than that *actually* present. The interfering activity rapidly decreases during storage, causing an *apparent* increase in alkaloidal potency instead of the slow decrease which actually takes place. Error caused by such interference can be avoided by aging the fluidextract for several months in completely filled containers in a cold-room prior to final assay and standardization. At the same time it was shown that the Broom-Clark Method, as applied in this work, yielded reliable results in all instances.

TABLE II. COMMERCIAL ERGOT SPECIALTIES.

Of a total of 21 Commercial Ergot Specialties examined, only one contained a satisfactory amount of alkaloidal activity, while the majority were practically inert. It is believed that this condition is due largely to faulty methods of preparation, since most of them proved to be essentially aqueous extracts, which are now known to be worthless because of the fact that extraction of ergot with aqueous menstrua does not extract significant amounts of the specific alkaloids (6), (8), (9).

A similar condition is encountered with solid or semisolid ergot extracts. Although none of these has been included in the tables of this paper, a number of such commercial extracts have been examined during the past two years and

have invariably been found to be devoid of significant alkaloidal activity. This is undoubtedly due to the fact that they had been prepared by a method involving extraction of the drug with an aqueous or hydroalcoholic menstruum containing no acid. Such procedure has been shown by Thompson (6) and others, to result in a preparation which is devoid of significant amounts of the desirable specific alkaloids.

CONCLUSIONS.

1. Of the Ergot Preparations now available on the market, the U. S. P. X Fluidextract is the most satisfactory, aside from those which contain a specified amount of ergotamine or ergotoxine (hydroergotinine, amorphous ergotinine) in suitable solution.

2. Fluidextract of Ergot should be manufactured and packaged in well-filled, small-sized containers, preferably one-ounce and never larger than four-ounce capacity, to avoid excessive exposure of the contents to air due to frequent opening of the container for removing portions by the wholesaler, dispensing pharmacist or other distributor.

3. To prevent the possibility of the therapeutic use of Commercial Fluidextracts of Ergot which have lost the greater part of their activity due to age, the label should bear an expiration date.

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(6) Thompson, *Ibid.*, Vol. XIX, No. 1; Jan. 1930.
(7) Swanson, *Ibid.*, Vol. XVIII, No. 11; Nov. 1929.
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ABSTRACT OF DISCUSSION.

Mortimer Bye asked regarding the length of time a fluidextract of ergot could be expected to retain the greater part of its potency. The author stated—six months to a year.

James C. Munch inquired whether any of the solid or powdered extracts were made in accordance with those of N. F. V. The author replied that some of them were.

F. W. Nitardy inquired relative to the relation of standard 636 to the present standard. The author replied that this would require going into the matter further than the paper. He said that No. 635 was the first standard fluidextract put out in accordance with the Pharmacopœia. At the time five manufacturers contributed the fluids used in the making of it. They were tested by the U. S. P. Cock's Comb Method. They were mixed and aged for six months: 0.4 cc. per Kg. instead of 0.5 cc. per Kg. was the U. S. P. standard. A means is afforded for checking and comparison of several standards. The 636 was somewhat weak, therefore was replaced.

E. E. Swanson asked whether ergotoxin had been used. The author replied that ergotinine had been used.

H. A. B. Dunning inquired whether studies had been made on the hydrogen-ion concentration and the effect of light. The author replied that E. E. Swanson had made some studies along that line.

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Spanish Psyllium Seed May Not Be Available for Export.—According to reports from the producing districts, it is highly improbable that any psyllium seed will be available for export during 1930. Excessive rains have almost ruined the crop which should have been harvested during May, June and July. (Consul H. L. Stafford, Madrid.)

"IT CAN BE DONE."*

BY J. LEON LASCOFF.[1]

At a joint meeting of physicians and pharmacists recently held by the Westchester County Pharmaceutical Society of New York, Dr. Cary Eggleston, a prominent New York physician and professor of Clinical Medicine at Cornell University Medical College, spoke on the relations between physicians and pharmacists. Among other points, he brought out the failure of the pharmacists to meet physicians' requirements. Some years ago he wrote a prescription for "Troches of Brown Mixture and Ammonium Chloride," which preparation was official in the Pharmacopœia, and marked on the prescription the letters, "U. S. P." Some pharmacists phoned him asking permission to dispense ready-made proprietary lozenges, and some dispensed the proprietary article without even consulting him. Each and every time he wrote this particular prescription he had trouble. Dr. Eggleston complained to me about it and asked me whether there was some difficulty involved in making these troches.

The preparation of these troches is really very simple. The beginner in the pharmacy college is taught to make up these and other lozenges according to official directions and formulas. Furthermore, at the examinations for "Licensed Pharmacist," I frequently included the making of this preparation. Some of the candidates turned out products which might compare favorably with the machine-made article. Another shortcoming that Dr. Eggleston mentioned was the dispensing of gelatin-coated pills. Here again, he had calls from pharmacists who wanted to give the ready-made product and who admitted lack of knowledge as to the proper coating of these pills. I say, *It can be done.* A simple method will be outlined later on. The same applies to salol-coated capsules.

It seems that our pharmacists are seeking to rush out their orders, subordinating the physicians' desires to their own convenience. In addition, there seems to be a sacrifice of accuracy for speed, as is indicated by some of the unsatisfactory products turned out. It is a condition such as this which discourages the physician in his prescribing and which tempts, and in many cases forces, him to call for some manufactured article. The manufacturer is familiar with the attitude taken by the average pharmacist and has been quick to turn it to his own advantage. I don't blame him. Consequently, we find the manufacturer preparing combinations desired by the physician, a large number of which combinations I could enumerate in this paper. Beside U. S. P. and N. F. preparations, the manufacturer is also putting up special ones which are in great demand.

The worst side to these ready-made items, one which the pharmacist has complained about for some time, is that the patient reads the prescription and, instead of consulting his physician, goes to some cut-rate drug store or perfume emporium and asks for a bottle of what the doctor prescribed. The patient is thus resorting to the dangerous procedure of self-medication.

As Dr. Arny not long ago stated, in his address on the future of pharmacy—"Unless the pharmacist encourages the physician in the writing of prescriptions,

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pharmacy will be doomed." If the manufacturer continues to put up more preparations of this kind and the pharmacist sells them, then pharmacy *will* be doomed. His position will be the same as that of the grocery clerk who mechanically picks off the shelf what is called for. It will be a matter of simply filling from one bottle into the other. Is it for this that we have our boys take a three-year course at college with the additional practical requirement—to say nothing of the coming four-year course?

A short time ago I had a call for Lassar's Paste as prepared by a certain manufacturer. We had in stock the paste prepared by several other manufacturers. When I called the physician to tell him it would take some time to obtain the desired preparation, I asked him if he had any objections to my preparing the paste according to the official formula. He was very agreeable about it and thankful to me, mentioning that the reason he preferred the manufactured product was that he had seen some preparations as made by pharmacists, which were actually unfit for use. This is certainly a sad state of affairs.

Another prescription brought to my attention was one calling for the official "Emulsum Asafœtidae." Instead of a white, presentable emulsion being dispensed, one that was half watery, as well as gritty, resulted. In this case the pharmacist again thought of nothing else but speed. If he had been thorough about pulverizing the asafœtida and had taken a little more time, there is no reason why a satisfactory emulsion could not have been turned out. *It can be done.*

The popular Whitfield's Ointment, formula of which is given in our "A. PH. A. Recipe Book," can be easily prepared in a few minutes by any pharmacy student, to say nothing of the practicing pharmacist, and this is now being made up by a manufacturer under a trade-marked name.

A considerable number of these preparations are being put up for skin specialists by certain manufacturers, whereas previously prescriptions were written, naming all ingredients. Another example which came to my attention was a preparation intended to present sodium sulphocyanate for use and which was detailed to physicians. Again an example of a frequently prescribed chemical being taken out of the hands of the pharmacist. It doesn't take much effort on the part of the physician to write out some trade-marked name, if he has to be uncertain as to how his own prescriptions will be compounded. The manufacturer has again made use of the advantage gradually being yielded to him by the unwary pharmacist.

Taking all this into consideration, what is left for the pharmacist to do? He complains, "There are not enough prescriptions being written to-day." Surely, *He is the one who is discouraging prescription writing.* How long would it really take him to prepare the ointment mentioned from the formula given in the Recipe Book?

So many pharmacists complain that it takes too long to compound prescriptions and, considering the time taken by the licensed clerk, that the profit resulting is very small. Does not this apply to the salesman out in front? Some clerks are very efficient and because of their efficiency are able to make quick sales; I mean by that sales in which there is no lost time or effort. This is applicable to the prescription department. With underpaid or inefficient help we cannot expect the proper response. Employ efficient help who can, with no sacrifice of

accuracy, supply more prompt service to those who are in pain or in urgent need of medicament.

At our practical examination, we gave five prescriptions for compounding by the candidates. Some did splendid work in less time than others who devoted four hours to the prescriptions, and who, in the end, turned out worthless preparations. A competent, able pharmacist can strike a happy medium between speed and accuracy.

I will illustrate a number of prescriptions which came to my pharmacy, as well as a number presented for my comments and advice. Many of the latter were published in various publications, among others, *The Practical Druggist*, *The New York Pharmacist*, *The Messenger* of the Columbia Pharmacy College. On many occasions one or another inquirer would be doubtful as to whether the prescription in question could be compounded satisfactorily, stating it could not be done. I will demonstrate facts—*It can be done.*

In order to cover as wide a variety of preparations as possible in the time at my disposal, I have included the following types: Lotion, mixture, pills (gelatin-coated and graphite-coated), capsules (keratin-coated and salol-coated), suppositories, and ampuls.

To arrive at a finished preparation and to turn a seemingly incompatible prescription into a presentable combination, I have made use, at times, of acacia, tragacanth, or aquaphor,[1] acacia being confined to preparations for internal administration; tragacanth and aquaphor to those for external use.

PRESCRIPTION NO. 1.

Red sulphide of mercury	1.2
Precipitated sulphur	6.0
Zinc oxide	10.0
Venetian talc	10.0
Liquid albolene	30.0
Distilled water	120.00
M. Sig. Externally.	

If compounded in the order written, a uniform lotion will not be obtained, even by shaking. The sulphide of mercury will be separated from the other compounds of the mixture; there is no means of suspension of the albolene, and the sulphur, zinc oxide and talc will sink to the bottom.

To obtain a uniform mixture, with an equal subdivision of the ingredients, the following procedure is advised: Incorporate the sulphide of mercury with 0.8 Gm. of powdered tragacanth in a little water. In a separate mortar incorporate the sulphur, talc, zinc oxide and albolene. Pour the latter mixture into the first, a little at a time, until all are homogeneously mixed; finally, add sufficient distilled water.

NOTE: It is just as important, and at times more important for the pharmacist to give the same attention to the proper compounding of prescriptions for external use as he does for those to be taken internally. He should not underestimate the value which many external preparations possess in alleviating suffering. The preparation under discussion, for example, if compounded carelessly, may have but little therapeutic value.

[1] A neutral base similar to anhydrous lanolin.

ABSTRACT OF DISCUSSION.

J. Carlton Wolf said that in Baltimore similar prescriptions are frequently prescribed, usually containing olive oil; the latter is emulsified, the zinc oxide is rubbed into a paste and then the two are mixed, a smooth mixture resulting.

The author stated that the important point is a uniform division of doses; the prescription had been selected because it had to be made up a number of times before a satisfactory mixture was obtained. Four persons check a prescription in the pharmacy of the author—the last one to pass on a prescription is known as the "kicker;" he is not always the favorite, because he will not permit a prescription to pass unless it is beyond reproach.

PRESCRIPTION No. 2.

Calamine	℥ ii
Olive oil	℥ ss
Solution of coal tar	℥ ss
Lime water ad	℥ ii

As in prescription No. 1, if compounded as written, the same undesirable separations will occur. In this case, the Coal Tar Solution presents an added complication. Ten grains of powdered tragacanth, as well as previous saponification of the olive oil with the lime water, will produce an acceptable product.

Louis Saalbach thought the Solution of Coal Tar was a help, not a hindrance.

PRESCRIPTION No. 3.

Fluidextract of cimicifuga	18.0
Elixir three bromides	45.0
Peppermint water ad	120.00
M. Sig.: 8.0 t. i. d. p. c.	

Compounding this prescription as written produces a preparation having a murky, unsightly precipitate at the bottom of the bottle due to the separation of resins and other insoluble matter. The addition of thirty grains of powdered acacia in making this mixture solves the problem. Due to possible gelatinization of the acacia by the alcohol present, care must be taken. A mucilage should first be made with the acacia and a portion of the peppermint water, adding the fluidextract a little at a time; then the remainder of the peppermint water and the elixir is added. The resulting product is a fine, homogeneous mixture with no precipitation.

ABSTRACT OF DISCUSSION.

J. Carlton Wolf said that a compound known as "Williams' Pink Mixture" is frequently ordered in which honey could be used as a suspension agent. He had suggested the use of honey to physicians, but their preference was for a suspending agent without flavor, such as tragacanth.

L. M. Kantner stated that the prescription referred to was that of an old Baltimore physician who prescribed it in certain throat conditions; he had a definite reason for prescribing honey in the preparation.

PRESCRIPTION No. 4.

Aristol	grs. x
Menthol	grs. ii
Camphor	grs. ii
Distilled water ad	oz. ii
M. ft. Sol.	
Sig.: ℥ i in glass water as a gargle.	

If compounded as written, it is impossible to obtain a presentable product; the three principal ingredients are insoluble in water. The following procedure produces an acceptable combination:

Liquefy the camphor and menthol by trituration in a mortar; incorporate therein the aristol. In a separate mortar, prepare a mucilage using ten grains of tragacanth with sufficient water. Add this mucilage to the other mixture; incorporating all with the remainder of the water. This will make a uniform mixture without separation of the principal ingredients.

PRESCRIPTION NO. 5.

Iodine	grs. ii
Stearate of zinc	℥ ss
Liquid petrolatum ad	oz. 1
M. et Sig.: Nasal drops.	

In this prescription care must be taken to have the iodine evenly distributed. If mixed as written, the entire amount of iodine will settle at the bottom; to obtain a satisfactory product, there are two methods which may be used. In the first, the iodine may be dissolved by means of a minimum amount of potassium iodide solution, taking up the water with a little aquaphor, and then incorporating the remaining ingredients. The second method which may be used is to dissolve the iodine in a minimum amount of ether, incorporating the other ingredients; the ether, of course, will evaporate from the preparation.

ABSTRACT OF DISCUSSION.

Louis Saalbach recalled a similar prescription—alcohol was used to dissolve the iodine and then this solution was added to the albolene—the mixture was warmed to drive off the alcohol.

William Gray reported on a similar preparation.

The author reported on a preparation which contained iodine, camphor and menthol. He said the important thing was to make certain that the iodine was held in solution.

PRESCRIPTION NO. 6.

Milk of magnesia	℥ iv
Liquid petrolatum	℥ ii
Sodium borate	℥i
Rose water ad	℥ viii
Sig: Cleansing Lotion	

At first glance this prescription may present no difficulties. If compounded in the order written, the oil will separate, in spite of the fact that the physician expected the Milk of Magnesia to keep it in suspension. After the addition of three drachms of Aquaphor (a neutral base similar in nature to anhydrous lanolin) to the liquid petrolatum, the rose water, in which the sodium borate has been dissolved, is added and a satisfactory homogeneous lotion results.

PRESCRIPTION NO. 7.

Potassium citrate	℥ii
Spirit of nitrous ether	℥ss
Syrup of orange	℥ss
Water to make	℥ii
Sig. ℥i in wine-glass water t. i. d.	

The potassium citrate is thrown out of solution by the alcohol in the spirit, but due to the free solubility of the citrate in water, some of the water is drawn along; the result is, that there are two conflicting layers causing a cloudy mixture. If half of the water is replaced by glycerin, a clear mixture is obtained.

PRESCRIPTION NO. 8.

Camphor	gr. i
Salol	grs. iii
Aspirin	grs. ii
Caffeine citrate	gr. i

M. ft. Of such doses, capsules No. XII

In combining the ingredients as written, a damp powder results, gradually becoming semi-liquid. This can be overcome by replacing half of the citrated caffeine by caffeine alkaloid (in order to adjust the strength), adding heavy magnesium oxide—one grain to the capsule—combining the latter with each ingredient separately and finally mixing all to form a uniform powder.

The author stated further that in combinations of this kind he used a double capsule; the camphor is divided and put into a small capsule—this and the other ingredients are placed in a larger capsule. He did not favor the placing of anything in the top of a capsule, but in a mixture of this kind it could be done.

PRESCRIPTION NO. 9.

Exsiccated ferrous sulphate	grs. i
Extract aloe	grs. i
Apiol	♏. i
Oil of savin	♏. i

M. ft. D. t. d. 24 pills

If the ordinary excipients are used, as for example, extract of licorice or of gentian, a large amount of powdered licorice must be used to keep the oil from separating out of the pill. The result will be a pill weighing about ten grains each.

The addition of one grain of wax and one-half grain heavy magnesium oxide to each pill will give us a product which in the first place will be small in size and in which the ingredients will be uniformly divided, permitting no leakage of the oil.

J. Carleton Wolf said he had found that pilular extract of gentian apparently enveloped the oil and held it in.

PRESCRIPTION NO. 10.

1 cc. Ampuls hyoscine hydrobromide $^1/_{150}$ gr. each
Tales ampuls No. 12

While most ampuls required by the physician may be obtained from the manufacturer, occasionally we have calls for odd strengths; for example, ampuls of sparteine sulphate, 2 grains each, as prescribed by Dr. Solis-Cohen; or hyoscine hydrobromide, $^1/_{150}$ grain. I have no intention of going into a lengthy discourse on the various methods of filling ampuls—I did that about fifteen years ago. I present a method whereby the pharmacist can extemporaneously, with the facilities available in the average pharmacy, prepare such ampuls of this nature.

The author demonstrated the method, using the hypodermic syringe, together with a special bottle to insure sterile conditions as nearly as possible. He said that a good opportunity was afforded for the pharmacist to display his art and to convince the physician as well as himself that *it can be done.*

PRESCRIPTION NO. 11-A.

Adrenal residue (liquid) minims xii
Cacao butter to make
Ten (10) rectal suppositories

If anhydrous lanolin or aquaphor be added to absorb the adrenal residue, the suppository thus made is soft and unfit for use. The most practical way I have found, is to use a ready-made cacao butter suppository, or one made in the pharmacy by machine. Bore a hole through the center of this cacao butter suppository and place therein the twelve minims of liquid using the same procedure as for filling soft capsules. Close the opening by covering it with previously melted cacao butter, by means of a spatula.

PRESCRIPTION NO. 11-B.

Solution adrenalin chloride	m. x
Extract belladonna	gr. 1/8
Cacao butter to make	
Twelve (12) rectal suppositories	

In this case, first mix the extract belladonna with the solution of adrenalin chloride, and proceed as with Prescription No. 11-A.

PRESCRIPTION NO. 12.

Pancreatin	grs. v
D. t. d. keratin coated capsules No. XX	

It is comparatively easy to make keratin-coated pills. However, this becomes difficult when applied to capsules. The ammonia water used in dissolving the keratin will dissolve the gelatin of the capsule. To obtain a satisfactorily coated capsule, dissolve the keratin in acetic acid. Add to this solution a small quantity of collodion. Coat the capsule (size No. 2) with this solution and place the coated capsule in an empty capsule (size No. 1), in order to protect the coating.

The same procedure applies to capsules coated with salol, as follows:

If coated in the usual way, by melting the salol, a large amount of the material is required. I have seen as much as ten grains used per capsule. In addition capsules coated in this manner are very apt to lose the coating, due to cracking of the salol mass and subsequent peeling. To obtain a satisfactory product apply, first of all, a uniform coating of shellac previously dissolved in pure alcohol. Then make a solution of the salol in ether, with which solution coat the shellacked capsule and place this coated capsule into another empty capsule.

The author said that when suitable keratin cannot be found the physician should be advised so he can make a change of coating.

COATING OF PILLS.

Coating pills with gelatin is not difficult at all. A satisfactory method of doing this consists in melting the gelatin, using no glycerin. The pills to be coated must be hard and smooth. By means of a flat tray made of celluloid or of glass, in which has been placed the melted gelatin, coat the pills by rolling them until a uniform coating is obtained.

H. A. B. Dunning said that gelatin coating had been a difficult problem with them. The method finally adopted is to make the pills and stick a pin into them. A highly concentrated gelatin solution is made—the pill is immersed in the warm gelatin solution and a blotting paper is used to get rid of the superfluous drop of gelatin and then the coating is allowed to dry and the pin holes are filled.

I. A. Becker stated that the subject of coating would be a study of the N. F. Committee.

The author was voted the thanks of the Section and by motion he was asked to prepare a paper along the same lines for next year's meeting.

ON BORAX IN COLD CREAM.*

BY W. L. SCOVILLE.

All formulas for Cold Cream—and there are scores of them—call for borax. Seemingly, without borax is no cold cream made.

Why is this unanimity concerning borax in so great a variety of formulas? What is the function of borax in cold cream?

No one seems to have inquired into the question in any experimental way. E. R. Jones said (*Bulletin of Pharmacy*, 1924, page 15) that "although soap does not appear in the formula it is present nevertheless and is formed by the reaction of alkaline borax solution on the free cerotic acid of the beeswax"—but he offers no evidence in support of that opinion. It is an easy assumption and the readiest explanation, but it does not fit well with some facts regarding the saponification of beeswax. The U. S. Pharmacopœia tests for saponifiable adulterants of beeswax by boiling it for half an hour in a 12 to 14 per cent aqueous solution of sodium hydroxide—by which no soap is formed. If beeswax will not saponify, even in part, under as drastic treatment as that, it does not seem probable that any of it will be saponified by a warm but weak solution of borax. The saponification of beeswax requires four hours of boiling in an alcoholic solution of potassium hydroxide.

Another possible explanation is that borax reduces the surface tension of water to an extent which promotes emulsification. We know that surface tension is an important factor in emulsions, and that emulsifying agents act, in part at least, by reducing the surface tension of water.

This hypothesis is no easier to prove than the other, particularly when it is considered that the alkaline salts have a greater influence on surface tension than do most neutral salts. It is known that sodium or potassium carbonate can take the place of borax in making a cold cream, but the substitution of one alkali for another does not throw any light on the question.

Facts regarding the influence of neutral and acid salts, and of organic compounds, upon surface tension are not easily found. It was only after Mr. F. A. Maurina had carried out a series of tests to ascertain the influence of a number of salts and organic compounds, that my interest in this question was brought to the point of experimentation.

Mr. Maurina found that of the neutral salts which he tried, lithium benzoate

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* Section on Practical Pharmacy and Dispensing, A. PH. A., Baltimore meeting, 1930.

was the most effective in reducing surface tension. A 9.5 per cent (one quarter Gm.-mole per liter) solution of borax reduced the surface tension of water from 79.28 dynes to 56.05 dynes, and a 1.8 per cent solution reduced it to 59.61 dynes.

A 12.8 per cent solution (one Gm.-mole per liter) of lithium benzoate reduced the surface tension of the same water to 59.00 dynes. I decided to try the influence of lithium benzoate on Cold Cream.

The following formula was chosen because (1) it contains no saponifiable ingredient except beeswax; (2) it contains the same amount of borax as the official Cold Cream; and (3) it contains a larger proportion of water than most formulas.

White wax	12.50 Gm.
White ceresin	6.25 Gm.
Liquid petrolatum	53.25 Gm.
Borax	0.50 Gm.
Distilled water	27.50 Gm.

On the basis of this formula, a solution of 2 Gm. of borax in 110 cc. of water (4 x 0.5 and 4 x 27.5) was made and the surface tension found to be 59.61 dynes. A similar solution of 2.8 Gm. of lithium benzoate in 110 cc. of water (27.5 cc. = 0.7 Gm.) was found to have a surface tension of 72.74 dynes. A weaker solution had a higher surface tension, and one of 4.2 Gm. in 110 cc. had a tension of 57.55 dynes.

Three experimental lots of Cold Cream were now made, using (*a*) the above formula, (*b*) the formula but substituting 1.05 Gm. of lithium benzoate for the borax and (*c*) omitting the borax and using distilled water only. The three products differed considerably.

That containing borax was snowy-white, smooth, spread easily and showed no separation of water even when manipulated.

The one containing no borax or any other emulsifying agent was homogeneous when just warm enough to pour, but separated water on cooling. It was much darker than *a* in color, much harder in consistency, had a granular and waxy appearance and separated water freely when manipulated.

The one containing lithium benzoate is intermediate. It is white and opaque, but not as brilliant as *a*, is harder in consistency, shows very small drops of water on the surface and separates more water on manipulation. The lithium benzoate has an emulsifying effect, but not nearly equal to borax.

Another chemical which Mr. Maurina found to have a marked effect on surface tension is quinic acid. A 19.2 per cent solution (one Gm.-mole per liter of the anhydrous acid) of quinic acid showed a surface tension of 63.87 dynes, and a 20 per cent solution of 59.8 dynes.

A 20 per cent solution of an acid did not appear very promising as an emulsifying agent, but it was tried. The same cold cream formula was used, but substituting 5 Gm. of quinic acid for 0.5 Gm. of borax. The result was a product which was a little better than the one containing no emulsifying agent, but not much better. It was harder in consistency than Samples *a* or *b*, separated some water on the surface and more water is worked out by manipulation. But considering that the attempt was made to use a 20 per cent solution of an acid for emulsifying the result again shows that surface tension is an important factor.

Whether it is the only factor, or even the main factor we do not know. We cannot fairly compare the emulsifying powers of different salts by use of dissimilar strengths of solution, yet if we are to judge of the value of surface tension in making emulsions of this type we cannot use salts in corresponding strengths.

The question has two aspects. The theoretical one, which is interesting from the purely scientific standpoint, and which would, if solved, lead to a better understanding of emulsions in general. Then there is a practical aspect. Borax, being alkaline and also forming insoluble salts with metallic elements, prevents the use of Cold Cream as a general base for medicinal application. Acids or acid salts will quickly destroy the creamy quality, and salts will, less quickly, act similarly, as well as form insoluble borates. Borax greatly restricts the use of Cold Cream as a vehicle.

This present paper is offered, not as a practical paper or as a solution of the question, but in the hope that some one will become interested in the question and solve it.

LABORATORY OF PARKE, DAVIS & CO.,
DETROIT, MICHIGAN.

WHAT SHOULD A PRESCRIPTION MAN EXPECT FROM A PROFESSIONAL SERVICEMAN?*

BY CHARLES E. MCCORMICK.

Throughout the length and breadth of this country, not only in the largest cities but in the smaller towns, day after day and week after week, there is a veritable army of men and women representing many different manufacturing pharmaceutical houses, and presenting to the physicians and dentists new products from their respective laboratories.

These professional service people have succeeded in performing for the medical and dental professions a very signal service, in that they not only bring to their attention the best efforts of research men, but place in their hands the best preparations that can be utilized for the good of mankind.

It is no simple task to convince the medical or the dental profession that the preparations which they are introducing have medicinal values or are superior in any way to those older products which the doctor has been prescribing all during his professional career.

After the professional service man has succeeded in convincing the doctor of the value of his new medicinal agents, it is of utmost importance that he place them in such a position that they can be readily obtained by both physicians and their patients, and at that point the prescription pharmacist supplies his greatest service.

It is my earnest desire that before any physican or dentist has had introduced to him a new product, that the professional service man will call upon one or more leading pharmacists of the community and explain to them just as he would to the medical man everything in reference to these products. It is well nigh im-

* Section on Commercial Interests, A. PH. A., Baltimore meeting, 1930.

possible for the pharmacist of to-day to gather information of an authentic nature about the numerous preparations placed on the market, unless some one takes a direct interest in them and presents the full details to him. In very simple language, the desirable way to have a new product marketed, is to have the professional service man first call upon the retail pharmacist and explain to him that during the next few weeks it is his purpose to call upon physicians and dentists in his neighborhood and then explain all about the preparations he is endeavoring to sell.

The professional service man will find that the prescription man can supply him with information about the office hours of physicians and dentists in the neighborhood of his store, thereby saving him much time. Since there are a great many physicians who are doing special work, information could be obtained which would place the professional service man in a better position to talk to his prospect about some item of his line which would be of the most interest to the physician.

It is not necessary for the pharmacist to put in a large stock of the preparations about to be introduced, but it is highly essential that he have them available when the prescriptions arrive. When a person comes to your store with a prescription for some unusual item, and you recognize immediately what it is and can give him the price of the prescription, and have him wait (if he cares to) you can rest assured that you have made an impression upon him that will be lasting, and you have created in his mind that which every real pharmacist endeavors to obtain, namely, the confidence of the public in his pharmaceutical proficiency.

On the other hand it is a very difficult thing to say just how much of the new preparations one should put in stock, because it is always very difficult to anticipate a demand for any new product. If the professional service man is introducing an entirely new line embracing more than two or three items, it presents a still different problem. If there is an agent or distributing depot in or near your city where you may obtain these items quickly, it is best to place in stock not more than a quarter dozen of each item, and then only with the understanding that they may be returned if the professional service man cannot create a demand for them within a reasonable time.

After the physician or dentist has been given information about a new product, it might be well for the professional service man to mention the names of the stores that have already stocked his product, and tell the doctor that he will have no difficulty in getting it immediately if he so desires.

Another suggestion which might be well heeded, is that the leading wholesale house or houses of the city be stocked with the products so that they may be obtained, not only by a few pharmacists, but by all those who in time will receive prescriptions for the new preparations. This also applies to the introduction of a full line of items numbering more than five or six.

During the past few years the writer has had the misfortune to have had presented to him prescriptions for a number of items about which little or nothing was known, because of the failure of the professional service man to call at his establishment and explain the dosage, action, name and price of the various preparations which have been introduced to the medical profession.

In conclusion all that a prescription man could and should expect from a professional service man is intelligent coöperation.

DOES THE PRESENT FORM OF THE PHARMACOPŒIA INTEREST THE PRACTICING PHYSICIAN?*

BY AMBROSE HUNSBERGER.

This subject is presented at this time because the writer is convinced that there is something lacking in the general plan of handling the revision and encouraging the use of the United States Pharmacopœia, which must be supplied in order that the most important factor in the therapeutic scheme, the practicing physician, will become interested sufficiently in the book to make it a part of his working library.

The inference to be drawn from the foregoing is that the average practicing physician is not interested in the U. S. P. from the standpoint of availing himself of the information contained therein. While it is believed that it would not be difficult to demonstrate the correctness of the inference by a multitude of figures the writer has not attempted to prove his point by that method. He has, however, made it a point during the past year to question a number of general practitioners and specialists in various lines of medical endeavor, and failed to find one physician out of the number who, himself, possessed a copy of the U. S. P. or who seemed to have much more than a vague knowledge of its contents.

Of course each one of them was aware of the existence of the book. A scattered few stated than on occasions they visited their neighboring pharmacist when it became expedient to consult the book but, on the whole, none of them appeared to consider it an essential part of their office libraries. Most of the physicians who, at some time or other, had seen a copy of the U. S. P. stated that its only value to the medical practitioner was that of a reference book and that the book in its present form failed to meet the requirements in that connection. Further inquiry disclosed unanimous desire to have the material in the U. S. P. presented in such detail as to make it informative to the busy practitioner and to have the matter set up in a manner or form to which quick reference might be made if an occasion arose which required it; that such occasions do arise frequently was readily admitted.

Inquiry as to the sources of information upon which dependence was placed in the absence of an official guide such as the U. S. P. disclosed the fact that in some cases the condensed publications, supplementary to the U. S. P. and N. F., issued by the A. M. A. and the N. A. R. D. were relied upon, but in an astonishingly large number of instances the information was secured from the catalogs of manufacturing houses. How this need for a convenient reference work on therapeutic agents was sensed by alert manufacturers is shown by an examination of the catalogs published by them. The space devoted therein to information concerning doses, dosage form, solubilities, compatibilities, therapeutic data, indications for use, etc., in most cases exceeds in area the space used for the purpose to which these catalogs are primarily dedicated, namely, price guides. This practice is not a new one among manufacturers, as most pharmacists know, and the fact that it has continued for years is obvious proof that the manufacturing houses which issue these publications must be convinced that the therapeutic information printed

* Section on Commercial Interests, A. PH. A., Baltimore, 1930.

therein is supplying a rather general need; otherwise they would not continue to bear the increased expense incident to this voluntary expansion of the size of their price lists.

The point probably will be raised that much of the information referred to as being furnished to medical practitioners by means of manufacturers' catalogs may be found in the present form of Pharmacopœia. True enough, but is the information in a form whereby the busy medical practitioners may readily utilize it, and will they dig through a lot of other material which is essential to the pharmacist and manufacturer but seems extraneous to the physicians' needs? And is the information which the physician seeks set forth in the U. S. P. in as satisfying detail as the manufacturer's catalog presents it? If it is, then why do physicians generally not possess themselves of a copy of the U. S. P. for reference purposes?

It has been suggested that a sum of money should be set aside to advertise the U. S. P. among physicians. The book as a book does not need to be advertised. There probably isn't a medical practitioner engaged in active work anywhere in the United States who is not aware of the existence of the U. S. P. in an abstract way, but it is evident that he does not buy it. Yet he does not hesitate to spend money for any medical work or appliance that appeals to him as constituting a necessary adjunct to his medical practice.

If, therefore, after all the time and money which has been spent during many, many years in preparing and exploiting the U. S. P., the physician still is indifferent to it, should we not begin to seek a reason for his lack of interest in the book and make an effort to present something to him in the form of a summary, abstract or résumé containing additional therapeutic data that will arouse his interest and be considered by him as a necessary addition to his armamentarium?

It certainly seems as if it should be within the bounds of possibility to inspire as much confidence in the U. S. P. on the part of the medical profession from the standpoint of making the information contained in it medically official as is accorded the book by the United States Government, which declares the U. S. P. to be the official Government standard of purity for drugs used in medical practice. This confidence will be inspired when the practicing physician is provided with the information not contained in the U. S. P. plus such additional data as will enable him to apply it to his practice. He needs the information, wants it and will, no doubt, avail himself of it if it is put together in a form that he will recognize as being practicable, convenient and perhaps indispensable to his work.

With reference to the objections which have been offered from time to time as to the wisdom or unwisdom of furnishing therapeutic data in an official standard of the type of the U. S. P. it should be stated that the data need not necessarily be a part of the official volume. The important point to be emphasized is the fact that, in the language of a former President of the United States, a condition and not a theory confronts us.

If the U. S. P. is to play a part in guiding the practices of pharmacy and medicine along sane, rational, professional lines, the material contained in it must be made available to the self-respecting practicing physician who dislikes to be made an agency for the exploitation of every description of fantastic nostrum parading in the guise of a scientific therapeutic development, most of which are destined ultimately to join the myriads of other therapeutic fakes so eagerly sought by a

confiding but deluded self-medicating public—a consummation devoutly wished for by the selfish promoters.

No better argument can be offered in favor of prompt action in behalf of furnishing a means whereby the doctor can secure some official guidance concerning drugs of established identity, purity and usefulness, than to call attention to the extraordinary chaos which now prevails in the field of drug therapy. Art, romance, psychology, poetry, plus the consummate skill of the advertising expert are combined to expound the alleged merits of an endless host of new nostrums consisting of nothing more than pretty, palatable and profitable combinations of old and well-known U. S. P. drugs which a doctor is told he cannot combine extemporaneously and which he believes, because he has no dependable information to the contrary. As a consequence pharmacists' shelves are groaning and their bank balances are gasping under the load of every variety of dosage form under the sun which is being foisted upon them by modern methods of merchandising.

This brings us to the final thought. In the days preceding big mergers when the counting house played a less important rôle than it does to-day, it was a custom for chemicals to be developed by chemical manufacturers who would market them as such. Pharmacists would purchase them as needed to meet their requirements and dispense them in the dosage forms ordered on the prescriptions of physicians. The pharmacist's investment then consisted of the cost of such a portion of the chemical as he deemed necessary to purchase. This might vary from a few grains up to an ounce, depending somewhat on the dosage.

The custom to-day is changed. Instead of setting on a shelf a portion of a newly discovered chemical and contenting himself with the thought that he is in a position to serve his patrons, the pharmacist now first buys a portion of the chemical, not from a chemical manufacturer but from a pharmaceutical manufacturer, who soon follows the exploitation of the chemical itself, with a one-grain capsule thereof, then in proper sequence a two- and a three-grain capsule, pink colored or otherwise, then tablets in various strengths, then a watery solution and an oily solution, perhaps a suppository and an ointment, a tincture of the crude drug if the substance in question is the active principle of a vegetable drug, then a syrup of the same and, of course, an elixir and so on until the entire gamut of dosage forms is run, and all of them must be under the label of the original promoter of the chemical. In the case of ephedrine one manufacturer has worked up to eighteen different preparations of this one substance.

If the original substance is not controlled in some way by a single manufacturer, then the pharmacist's troubles, if he runs a real service store, have just begun because waiting outside the door are the representatives of a half dozen competing manufacturing houses who are going to tell him how many pages of advertising in medical journals they are going to use in the ensuing months to exploit the same substance, in the same dosage forms, usually at the same prices, and the pharmacist looks mournfully at his empty capsules, his tablet machine, his graduates, scales, percolators and glass funnels, his ointment slab and his suppository machine, his mineral oil and distilled water bottles, and he buys and buys and buys. Because, how can he tell that all of the advertising is not going to pull and of course he does not want to be caught without Blank & Blank's one per cent solution of the

exploited substance if a call for it comes in just before closing at eleven o'clock at night.

Is it not time to get back to first principles in some of these connections? Has the merchandising frenzy not gone far enough? Have we not departed a bit from the rational procedure which should guide those who pretend to serve the sick? Can we not correct this condition to some extent through the agency of the U. S. P.? The interval between revisions seems too long for the book to keep pace with scientific progress. Therefore, it would seem as if at this time the question of supplementary sheets might well be considered. Just how the details would have to be worked out the writer does not pretend to say, but does desire to leave the thought that along with the development of some official publication, patterned after the lines of the summaries of the U. S. P. and N. F. for the use of practicing physicians, provision should be made also for the periodic or sporadic publication of a supplement to the latest revision of the U. S. P. which would serve as an official source of information of new therapeutic agents, that are deemed of value, which could be relied upon by those who desire to adhere to intelligent and honest practice in the professions of medicine and pharmacy, thereby insuring a respected position and the permanency of both practices.

National Formulary VI Revision Committee.

(See page 673, July JOURNAL A. PH A.)

Front row, left to right—Samuel L. Hilton, H. V. Arny, Adley B. Nichols, *Secretary;* Louis Saalbach, *Vice-Chairman;* E. N. Gathercoal, *Chairman;* Wilbur L. Scoville, Leonard A. Seltzer.

Center row—Glenn L. Jenkins, Gustav Bachman, E. F. Cook, Bernard Fantus, Oliver A. Farwell.

Top row—I. A. Becker, H. A. Langenhan.

DEPARTMENT OF BUSINESS MANAGEMENT

Conducted by Paul C. Olsen.*

COMMENTS, QUESTIONS AND SUGGESTIONS ARE INVITED AND WELCOME.

Readers are invited to submit comments, criticisms and suggestions regarding the material which appears in this department. The Editor also will undertake to answer questions regarding general problems of business management. Letters of general interest will be published, but the writer's name will not be revealed without his permission.

THE MOST PROFITABLE WAY TO INCREASE TURNOVER OF DRUG STORE MERCHANDISE.

BY PAUL C. OLSEN.

Profits in a drug store, as indeed they are in any retail store, are determined by margin, volume and turnover.

By margin is meant the difference between the price paid for merchandise and the price at which it is sold. By volume is meant the amount of sales which are made. By turnover is meant the rapidity with which sales are made; that is, the time which elapses between the proprietor's purchase of merchandise and its subsequent sale.

Of these three factors margin receives the greatest emphasis, not because it deserves it, but because it is the most apparent and easiest to see. In a drug store this extra emphasis upon margin is illustrated by the following conversation.

"Here's some merchandise on which you can double your money—a tooth paste that costs you $3 a dozen. You can sell it for 50 cents a tube because there is no price competition. What's more, we'll give you the exclusive agency for it in this locality. Why shouldn't you spend your time and effort in pushing this merchandise instead of merchandise on which you get a margin of only $33^1/_3$ or, with cut prices, even less than that."

What the guileful salesman has overlooked in the above sales talk is the fact that the alleged doubling of the money from the sale of this unknown tooth paste can come only when sales are made. If the merchandise isn't sold, the druggist makes and can make no profit, no matter what the theoretical gross margin is.

Furthermore, the longer such merchandise stays in the store the more it costs him to keep it there, just as the longer a person stays in a hotel the larger his bill will be. Furthermore, if a person has to wait a year to get a net profit from the investment of merchandise, it is obvious that four times as much net profit must be earned per dollar of sales as would be the case if the same investment produced those profits successively four times in a year.

Turnover is important, therefore, as a determinant of profits, because it is a measure of the rapidity with which merchandise is sold and, if the merchandise is sold at a profit, it becomes, also, a determinant of the rapidity with which profits are earned.

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Volume is likewise important. It matters little if a man can "double his money on merchandise" if, even with extraordinary efforts, he can sell only a few dollars worth of merchandise in a year's time. In contrast he may obtain, without such special efforts, several times the amount of sales on merchandise which is more popular.

It is gratifying to note the steadily increased interest with which the importance of turnover as a determinant of profits is being considered by retail druggists. A drug store has in its stock 8000 to 15,000 different items. In fact, many of the larger stores have stocks much more varied than this.

In a going business, merchandise is bought not in bulk but item by item. This means, in turn, that when a druggist decides to make serious efforts to increase the turnover of his merchandise stock, he undertakes to buy individual items in quantities which will produce the most rapid rates of turnover. By producing these rapid rates of turnover, he believes that, if the merchandise can be sold at a profit, it will produce profits with similar rapidity and release the money tied up in this merchandise for reinvestment in additional merchandise on which profits can be earned with similar rapidity.

It is well known that some merchandise in a drug store is much easier to sell than other merchandise. In fact repeated investigations indicate that two-thirds to four-fifths of the sales in most drug stores are produced by one-third to one-fifth of the stocks. In other words, a part of the stock, amounting to one-fifth to one-third of the total stock, sells two to four times as readily as the rest of the stock.

It is plain, therefore, that a druggist, recognizing the importance of turnover as a determinant of the total net profits of his business, would find it easiest to increase the rate of turnover on this relatively small part of his stock which produces the bulk of his sales. This merchandise already has proved its salability by the great frequency with which it has to be replaced in comparison with the rest of the stock in the store. Bear in mind, again, that when a druggist sets out to increase his turnover, he applies this general idea not to the stock as a whole but to the purchase of individual items of merchandise. The purchases he makes most frequently are the items which are readily salable, as the facts above indicate.

An extension of this practice frequently has led many druggists, particularly in the larger cities close to most of their sources of supply, to buy popular merchandise in quantities so small that they have to be reordered once and even twice a week. (I am speaking of course, only of the staple, non-perishable and non-seasonable merchandise.)

One of the most obvious difficulties when individual items of merchandise are bought in such small quantities that they have to be reordered once or more often weekly is that there is a constant risk of being out of merchandise which customers have indicated their willingness to buy by the very fact that it has to be reordered so frequently. Demands fluctuate from day to day; a small stock of popular merchandise does not permit a druggist to obtain the profits from unusual and sudden increases in demand. People, disappointed once or twice by being unable to buy popular merchandise at a drug store, are likely to transfer their business to a competing store and this is quite serious because of the loss

not only of sales of these items which were not in stock but, of many dozen other items which these customers might have bought at the store on their visits to it.

The second disadvantage is the extra work involved in reordering merchandise so frequently—the necessity of checking several orders instead of one and the necessity of verifying and paying several invoices instead of one.

To counterbalance these disadvantages, the theoretical advantages are, the savings in carrying costs and a greater return per dollar invested in merchandise.

Consider first the theoretical savings in carrying costs. In a typical city neighborhood drug store the carrying costs of staple, non-perishable merchandise are usually about four-tenths of one cent per dollar of sales per week. In other words, a druggist who takes the trouble to order popular merchandise in such small quantities that it has to be reordered within a week, saves on carrying costs of such merchandise the sum of four-tenths of one cent per dollar of sales, in comparison with buying such merchandise in quantities which would last for two weeks and thus overcome, in some part, the disadvantages of an exceedingly rapid turnover which are indicated above. Practically speaking, the savings in carrying costs in most drug stores are negligible when turnover at a rate of more than once a month, or even once in two months, are obtained.

Now consider the second theoretical advantage of a rapid turnover—increased rate of return on the money invested in such merchandise. It is true that, if a druggist buys popular merchandise in quantities to last a month or two, instead of only a few days, the theoretical return per dollar invested on such merchandise will be decreased.

However, consider the facts of the case. The bulk of the sales of drug stores are in this popular merchandise on which exceedingly rapid rates of turnover are possible to obtain. On the other hand, as mentioned before, two-thirds to four-fifths of the merchandise investment of most drug stores is in merchandise which is commonly classified as slow selling stock.

Therefore, the number of dollars which a druggist has invested in popular merchandise on which high rates of turnover and high rates of profit are obtained is small in proportion to his total investment. If a druggist puts most of his money into this merchandise of proved salability, he will decrease the net rate per dollar invested, but he will be able to invest so many more dollars that the total return will be greatly increased. After all, the total return is what interests a druggist most. Certainly there could be no better place for a druggist to invest his money than in merchandise of proved salability.

This means, in turn, that the merchandise now constituting the bulk of a druggist's stock investment, and producing only a small part of his sales, will decrease. This is a decided advantage for two reasons. One is, as suggested, the money released will go into popular readily salable merchandise. The other reason is that the money tied up in this merchandise which sells slowly will not be as large as before, however, the return on it will be much greater than before.

Consider carrying costs first. As mentioned above, the carrying costs of merchandise per dollar of sales in city neighborhood drug stores, for example, average about four-tenths of one cent per week.

Therefore, if slow selling merchandise, formerly bought to sell within one year's time, is bought in a quantity to sell in three months' time, thirty-nine weeks'

carrying costs are saved, a saving of 15.6 cents per dollar of sales, a sum which is considerably in excess of the usual net profits for most druggists per dollar of sales.

It is on this slow selling merchandise that the greatest savings are possible and practical in carrying costs. Even if such merchandise, when bought in minimum quantities, lasts for six months instead of a year the saving in carrying costs alone amounts to 10.4 cents per dollar of sales, an amount which easily can mean the difference between its profitable and its unprofitable sale.

Consider now the possibilities of increasing the rate of return upon money necessarily invested in a drug store in the slow selling merchandise which it has to have in order to meet the demands of its customers. If such merchandise is bought in quantities so that a turnover of this merchandise is possible four times in a year, instead of once, the effect upon the return from the merchandise investment is easy to see. Consider, for instance, the following example.

Merchandise sells for		$12.00
Merchandise cost	$6.00	
Selling cost	2.40	
Carrying costs 1 year	2.50	
PROFIT:		$ 1.10

This is a specific example of some of the "double your money" merchandise which has sold so slowly that a year has elapsed before all the money invested in it is free for reinvestment.

Suppose, instead of the dozen purchase of this slow selling merchandise, a quarter dozen were bought, enough to last three months. Here are the facts upon the profitableness of that purchase.

Merchandise sells for		$ 3.00
Merchandise cost	$1.50	
Selling costs	.60	
Carrying costs 3 months	.16	
PROFIT:		.74

By the simple expendient of purchasing this slow selling merchandise in quarter dozen lots, instead of a dozen at a time, this druggist has changed a profit from the money invested in such merchandise from $1.10, for a whole year to $2.96 and, at the same time, has reduced his investment in this slow selling merchandise and consequent risks to one-fourth the former amount.

It is apparent, too, that even if there is a substantial quantity discount for the purchase of a dozen of such slow selling merchandise items at one time the theoretical buying advantage may be overcome easily by the greater profits to be obtained by buying so as to obtain a turnover of at least four times a year.

The Seventy-Ninth Annual Meeting will be held in Miami, Florida.

PROFESSIONAL PHARMACY, II.*

At the Rapid City meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION last year, you were kind enough to listen to a talk by me on this subject and to request me to continue my study of the development of professional pharmacy. For those who did not hear the talk last year, I will say that it appeared in the November 1929 issue of the JOURNAL, A. PH. A., pages 1170–1176.

In the above paper appears the following:

"The foregoing list is far from complete as many replies gave me a great deal of information but not the data that I wished and, without doubt, a number of professional stores were not approached. I believe the information contained does show a decided trend on the part of American pharmacy to separate into two distinctive types, professional and commercial. I am convinced that this trend is only in its infancy. Of the 117 stores reported, 64 or 54.7 per cent were established in the last nine years and 44 or 37.6 per cent in the last five years. Eliminating 16 reports for which we have no accurate data, these stores are compounding an average of 16,300 prescriptions per year, or 45 daily. I feel sure that there are a goodly number of non-professional stores that equal or exceed this average. However, we must not lose sight of the fact that 54.7 per cent of these stores were established within the past nine years and it takes considerable time to build up a professional business."

In my endeavor to complete this study, I wrote the Secretary of every state pharmaceutical association as follows:

"At the last meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION I presented an address on the development of professional pharmacy, a reprint of which I am enclosing. I stated that this study was not complete because it was impossible to reach all the professional drug stores and the A. PH. A. asked me to continue the study and present a further report at its next annual meeting.

"I am writing to ask you if you will be kind enough to give me the names and addresses of all professional drug stores in your state. I fully appreciate this is a big request but I hope your interest in pharmacy will prompt you to assist me. Perhaps you are not the one who has this information for your state. In that case, I will deeply appreciate your giving me the address of someone within the state who may have the information. Thanking you in advance, I am

Sincerely yours,"

This means that every state in the United States was covered as far as the coöperation of the state pharmaceutical associations make it possible. In answer to these letters, I received about 250 names of professional or semi-professional drug stores. After checking with the list that submitted data last year, I still had about 150 stores to solicit for information. Of this number, a great many replied that their stores were not professional and therefore my letter did not pertain to the type of business they were conducting. However, I did receive replies from about one-third of them and data from forty. The data was requested in the same form as used last year and is reported here, but will be presented later in a slide that shows date of organization of the store, number of prescriptionists employed and annual number of prescriptions compounded. This slide shows data from thirty-seven stores. It is interesting to note that only nine of the thirty-seven stores compounded more than 20,000 prescriptions a year and that twenty or more than one-half or them compounded less than 12,000 prescriptions a year. I believe that it is evident that the 154 stores from which data are sub-

* An address by C. B. Jordan before AMERICAN PHARMACEUTICAL ASSOCIATION, Baltimore meeting, 1930.

mitted fairly, completely covers this type of professional business in the United States and, I think, that further study at this time will not uncover many new professional drug stores.

Store No.	Date of opening.	Prescriptionists.	Annual No. of prescriptions.
118	1906	2	11,000
119	1910	2	7,500
120	1904	2	10,000
121	1898	2	2,000
122	1919	2	10,000
123	1917	3	15,000
124	1924	2	6,000
125	1911	2	10,500
126	1913	3	10,000
127	1890	3	10,000
128	1923	2	5,000
129	1903	3	4,000
130	1907	3	12,000
131	1919	2	10,200
132	1919	4	45,625
133	1926	4	38,000
134	1919 (2 stores	5	20,300
135	1908	2	8,500
136	1891	3	11,200
137	1926	2	13,453
138	1919	2	16,790
139	1903	3	17,000
140	1929	2	15,000
141	1899	2	3,000
142	1924	4	25,550
143	1925	2	6,500
144	1926	2	1,500
145	1929	2 (in 5½ mo.)	2,551
146	1915	14	75,000
147	1921	5	9,957
148	1912	4	25,600
149	1895	6	50,000
	Have filled over 1,400,000 prescriptions to date.		
150	1906	4	29,200
151	1925	4	42,000
152	1919	2	5,000
153	1924	2	14,000
154	1898	3	20,397

A study of the data from the complete list of 154 stores reveals some interesting facts:

First. Eighty-eight or 57+% were started since January 1, 1919, or in the past eleven years, and 57 or 38−% have been started since January 1, 1924, or during the past six years.

Second. Eliminating reports where data was estimated and not given in actual figures, we have 136 stores compounding 3,297,862 prescriptions annually or 24,249 annually per store or 66 per day per store.

Third. It required 492 prescriptionists to compound these 3,297,862 prescriptions or 18 prescriptions per man per day. Since several of these stores also

do a commercial business, it is a fallacy to assume that these men were fully employed in compounding 18 prescriptions per day. If we eliminate all stores that do less than 10,000 prescriptions a year, we find 404 prescriptionists compounding annually 2,991,647 or 20 prescriptions per day per man.

Twenty prescriptions per day per man is not enough to keep him busy even if he spends considerable time in manufacturing preparations for these prescriptions, therefore we must assume that these men are engaged in other employment. A study of the data reveals that the number of prescriptions per man varies greatly in those stores that compound less than 25,000 prescriptions per year. Either the men are employed in other duties or the overhead for labor is high.

If we eliminate all those stores that compound less than 25,000 prescriptions per year, we still find great variations as illustrated by:

A store requiring 14 men for 75,000 prescriptions
and one requiring 9 men for 100,000 prescriptions
One requiring 10 men for 45,000 prescriptions
and one requiring 5 men for 45,000 prescriptions
One requiring 13 men for 54,050 prescriptions
and one requiring 4 men for 60,000 prescriptions

I believe these variations can be explained by assuming that men are otherwise employed in some stores or the cost of labor-overhead is high or by a combination of both of these.

If we eliminate all those stores compounding less than 25,000 per year, we find 22 prescriptions per man per day. If, however, we select a group of the best stores, we find them compounding approximately 50 prescriptions per man per day, which is probably near the maximum average for full-time employment.

Fourth. Although it usually requires considerable time to become established as a professional pharmacist, some are fortunate in their selection of location or in beginning with a good clientele or both because some of the younger stores are enjoying an excellent business. This is illustrated by the following:

A store opened in 1925 compounds 28,080 prescriptions annually
A store opened in 1926 compounds 20,000 prescriptions annually
A store opened in 1929 compounds 18,000 prescriptions annually
A store opened in 1923 compounds 50,000 prescriptions annually
A store opened in 1925 compounds 46,600 prescriptions annually
A store opened in 1925 compounds 42,000 prescriptions annually

A careful study of this data will probably reveal more interesting facts, but that is left for the reader to deduce for himself.

Last year I pointed out that a person opening a professional drug store should be prepared to finance a losing proposition for some time, probably six months or a year. I was interested in the story of how one young man went about selecting a site and financing his initial effort. He travelled over three of the Midwestern states in an automobile studying the cities until he found one that he thought should support a professional store. After selecting his city he carefully selected his place of business, considering proximity to prescribing physicians, rent, etc. The first few months he closed his store and delivered his own prescriptions. Unless it was a rush prescription, this was done during the lunch and dinner hours. Within a short time, he was able to employ a delivery boy and in less than 18

months he employed a registered clerk. He is now, after two years, doing a nice business and his venture bids fair to be a success.

Since the publication of my talk of last year, I have met considerable interest in this subject. Several young men have written me about this or that phase of a professional store. I have also supplied copies of the names and addresses of these professional stores to a number of interested people, always taking care to protect those who have given me confidential data. I take these inquiries to mean that there is an awakened interest in professional pharmacy and we may expect greater development in it in the future.

A letter from one of the semi-professional stores contained the following:

"One must make every effort to do as large a volume as possible, but, after all is said and done, we point with pride to our prescription department as the symbol that gives us public trust."

No truer thing can be said, but it is unfortunate that many commercial stores use that symbol as a cloak for their commercial operations. A proprietor once told me that his prescription business was insignificant and he cared little for it as it was not a financial success. Yet every advertisement that his store carried in the newspaper had "Prescriptions a Specialty" in bold type and in a prominent place. He was using this symbol of public trust to draw trade for commerical operations. As long as any number of our pharmacists continue to do this, just so long will it be difficult to build up public trust.

Another writes:

"A person starting this type of business should be warned to wait until he has sufficient capital to carry on for a period of six or eight months. The loss of operation during the first six months was exceedingly heavy, approximately $2000. We will make a little this month which is gratifying."

You will remember that this point was also stressed last year. Another writes:

"I pay only $55.00 rent, employ one registered pharmacist besides myself, one unregistered man and one girl and did $38,000 last year."

With such a low overhead, he surely made money. Another writes:

"Professional pharmacy is going to the fore, a condition for which the chain store is responsible, owing to their merchandizing of products not essential to the drug line. Our experience has been, surrounded as we are by eight chain stores within a radius of eight blocks, that we have been gradually growing. The physician is opposed to the chain store. This is what happened in our locality. A six-story building was erected for the purpose of a medical center. A big mistake was made. The lower floor was rented to a popular chain store, with the result that many doctors refused to take space in the building. To-day, after eight months, eight doctors have taken space in a building which could have accommodated fifty."

This is a rather interesting viewpoint and one worth considering. The individual who operates an independent store in competition with a chain should try to capitalize on all of his advantages, such as the one mentioned, and, if he does this, I believe he will be able to meet the competition offered by the chain.

A very successful professional store operator and laboratory technician has said:

"Many pharmacists will say that such work (technical laboratory work) can only be done in a large city. Our answer is that the country doctor has less time to do his own laboratory work

than the city doctor, and would be glad in most cases to have a pharmacist do it for him. If such were not true, why do they mail such work in to us? Doctors generally do not care much for laboratory work and are pleased to delegate it to a properly trained pharmacist. Some doctors object to turning their patients over to a fellow-physician, specializing in laboratory diagnostic work. They have no objection, however, to a well-qualified pharmacist.

"The average medical student slips through his chemistry courses and devotes his time to medical subjects. The average three- and four-year pharmacy graduate has twice the chemical training of the medical student, and is thus better qualified to do laboratory work. If girl technicians and nurses taught by doctors in small hospitals are qualified to do such work, it is obvious that the three- and four-year pharmacy graduate should be a hundred times better qualified.

"Pharmacists and pharmacy school faculties cannot expect professional pharmacy to advance until they eliminate the two-year course and train our future pharmacists with *a four-year curriculum*. Then the pharmacist will be equipped to take his place beside professional men, and will be recognized as one of them."

We, at Purdue University, are endeavoring to foster this idea by installing a beautiful professional store in our new building. All of our student prescriptions are dispensed from this room, about 15,000 per year, and our students are given training in decorating the show cases, window trimming, etc., and are taught to study the merchandise that should be carried in such a store. Our thought has been to place before them an ideal that they may later use when they wish to go into professional pharmacy.

The question is often asked, what should be the per cent of profit from such a professional business? I believe a successful operator may expect to make a profit of 20% of gross sales after paying the proprietor a reasonable salary. Recently a successful operator of professional pharmacies showed me his balance sheets for a number of years. The first one he showed me gave 16% profit, which I thought was too low. Examination of several showed that it was low as the average was well above 20% and he later explained the low showing of the first sheet to be due to unusual purchases of equipment such as new cash register, biological cabinet, etc.

If the operator can make a 20% profit in excess of his salary, and I believe he can do it on this type of store as soon as he gets it on its feet, I can think of no pleasanter and more profitable business for the pharmacist. I am so enthusiastic about professional pharmacy that, were I to start in pharmacy again, I would surely try it.

That this story may be a connected one, I will, with your permission, show the slides of last year together with a new data slide and slides of pictures secured this year.

Slides were shown.

RECENT LEGISLATION AFFECTING PHARMACY IN VIRGINIA.*

BY A. L. I. WINNE.[1]

In most of the states this has been an "off year" in legislation, but in Virginia we have the custom of doing our regular legislating in the even years, and the regular session of the General Assembly of our state met early in January, and several matters of interest to pharmacy received attention.

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* Section Education and Legislation, A. PH. A., 1930.

[1] Secretary Virginia Pharmaceutical Association.

As might have been expected, bills to impose special taxes on pharmacists cropped up. One of these would have imposed a stamp tax of one cent an ounce on all medicinals containing four per cent or more of alcohol and not more than twenty per cent, as well as impose a tax on malt preparations and on canned heat, if "fit for use as a beverage." This bill was killed. Another bill would have had the pharmacist record the name, age, residence and date of sale, together with the amount of same, of all medicinals containing ten per cent or more of alcohol. This bill was also killed. Both were very poorly drawn bills, vague in their terms, lacking in specific definition at many points, and they were not hard to dispose of.

A chain store tax bill, drawn so as to tax each store in a chain, after the first one of the chain, an amount of fifty dollars annually, passed the house, and also passed the senate with an amendment exempting the first five stores of a chain. The House and Senate could not get together in conference, and the bill died. There was considerable debate over the constitutionality of this bill, as it was substantially the same as the Indiana measure which was recently declared unconstitutional.

Two bills were passed which are of interest to pharmacists in Virginia, and should be to pharmacists throughout the country. The first of these was what was referred to as the "Assistant Bill." This was a measure to abolish the issuing of assistant pharmacist certificates of registration, after March 1, 1933. The bill was amended in passage so as to become effective in 1935. The compromise was accepted by those interested rather than go through with the fight again. This was the third effort to get such a bill passed in Virginia. It is now law, and it will not be so very long before the board of pharmacy will discontinue giving "assistant" examinations. By terms of this bill the board may, after it becomes fully effective, issue but one grade certificate, that of "registered pharmacist." Those qualifying for the pharmacist examination must be graduates of approved schools of pharmacy, except that those holding certificates of registration as assistants prior to March 1, 1933, may be admitted to the pharmacist examinations without being college graduates. That was an inducement held out in order to get the bill passed, and does not constitute any serious situation, as we have but a small number of assistants, and the number is not likely to rise much higher during the next three years, as the examinations given to the assistant applicants are close seconds to those given to the pharmacists.

Another measure of interest is a bill to control the sale of veronal, barbital, derivatives of diethyl barbituric acid, mixtures containing any of these, together with sulphonal, trional and tetronal, and chloral hydrate or mixtures containing chloral hydrate in quantity of twenty grains or more to the ounce. Such preparations and drugs must be sold by pharmacists on physicians' prescriptions, which may not be refilled. This law takes control of such drugs to a large extent out of the pharmacists' hands and places it in the hands of physicians and, undoubtedly, will mean a smaller volume of business in these items for the pharmacist. At the same time it prohibits the general merchant to handle such drugs, and under old law such merchants could handle many of them in original packages. The law has the further weakness of not covering transactions in interstate trade. This was true also of the narcotic situation after several states passed narcotic laws and their neighboring states did not do so, but the trade which went on between

individuals in states having laws restricting sales to physicians' prescriptions and merchants located in other states was negligible. We believe that it will be so in this instance, and we also believe that this sort of legislation will be adopted in more and more states as the abuses of these drugs are more appreciated, and that finally the federal government will take notice of the situation and enact such laws as will take care of the matter the country over, just as was done in the narcotic situation.

We understand that we are not the first to secure laws to take care of this situation or to abolish the registered assistant grade, but are glad to be among the early arrivals in both camps.

ABSTRACT OF DISCUSSION.

H. H. Rusby stated that in New York State there had been a class of "licensed druggists," who had attended one year in college and licensed to do certain things. Three thousand of these had been registered when the state stopped it; now all pharmacists take the three-year course. An effort was made in the legislature to have the degree of graduate pharmacist given to those referred to; this was attempted three times, but each time the bill was killed. If such a bill was passed it would give them the title of "graduate pharmacist."

Charles T. Heller stated that Minnesota had abolished the assistant's certificate.

Jacob Diner said that they were now trying to kill a bill in New York, but there is a handicap which the pharmacists themselves brought on. Some of them claim to be in favor of the bill and it took considerable argument to show the legislators the difference between "druggist" and "pharmacist," between one who simply takes an examination after a year in college and a graduate who completes a three-year course. He suggested that the term "pharmacist" should be applied and a distinction made for druggists.

R. L. Swain pointed out the wisdom of thinking about some of the things that may come up. He said there is a public health value in the sale of patent medicines, but it might be difficult to convince the legislators of that fact. In Maryland, work has been done in the state association with the end in view to collect information that would be valuable for legislative purposes. He referred to a sale of powdered alum for powdered borax; case was also reported of sending out camphorated oil for castor oil.

The author referred to an admixture of lead acetate with Epsom salt. The error was explained by the statement that a package, without label, of lead acetate had been thrown into a barrel of Epsom salt. In this case it was possible to have all the salt returned, and no damage resulted. He presented this information for use when needed in legislative promotions to show the importance of drug knowledge.

Wortley F. Rudd presented the idea that package drugs should be labeled in a way to show that the material had been handled entirely by registered pharmacists. Such a statement would inform the public of the importance of all drugs being sold by trained pharmacists.

Robert P. Fischelis stated that various methods were employed in getting around proper labeling and gave, as an example, the labeling of camphorated oil as "camphor and oil compound." The New Jersey Board has collected information along these lines.

Jacob Diner said that a similar occurrence had to be dealt with in New York, not only as to camphorated oil but also spirit of nitrous ether.

J. H. Webster inquired whether any effort had been made to restrict the sale of acetanilid preparations. He said that the use in headache tablets and otherwise was increasing and that such preparations could be purchased almost anywhere.

The author said that the bill as originally drawn was presented by a legislator who knew nothing of pharmacy or medicine, and he was fair enough to submit the bill before presenting it in the legislature. In the measure, paregoric and other things were included. He thought perhaps a mistake had been made in cutting out acetanilid, because, as far as he knew, there was no large extensive use of it in Virginia. The bill takes out of the hands of the druggist the privilege of extensive sale of some things but, in the opinion of the Virginia pharmacists, it seemed to be desirable that this should be, in a way, restricted to the prescribing physician.

RECENT LEGISLATIVE ACTIVITIES OF THE MASSACHUSETTS STATE PHARMACEUTICAL ASSOCIATION.*

BY CARL G. A. HARRING.[1]

It is now a good many years since the bothersome question of a prerequisite law began to make real headway in the councils of our state association and nearly every convention has seen this bone of contention exhumed and re-masticated, although each time it became more evident that the opponents were fighting against the inevitable.

The fact that Massachusetts was practically the only state to allow registration without a college degree was a weighty factor, for the unlimited competition that the druggist has to face was the potent argument against this law.

At the 1929 convention in June a motion was made and carried that our legislative committee be directed to bring in a draft of a prerequisite bill to this year's mid-winter meeting; this was done, the draft was accepted by the meeting, and the committee will present to next year's legislature a bill making a college degree a prerequisite to registration in pharmacy—this to take effect four years from its passage.

There remained, however, the chief argument of the opponents; namely, that it was unjust to add new burdens to the already overburdened druggist as long as he had to fight competition with all kinds of vendors who were allowed to sell, without let or hindrance, nearly every commodity usually sold in drug stores.

While our state has a pharmacy law that excludes the sale of drugs in any but registered drug stores, this law exempts from its provisions all proprietary preparations as well as an extremely generous list of drugs for "household use," thus making it of very little practical value. It was with the idea of rendering some protection to our profession and likewise to further safeguard the public health that I caused our counsel, some five years ago, to prepare a bill to be presented to our legislature—this bill to restrict the sale of proprietary remedies containing potent or poisonous drugs to registered drug stores.

This first bill we were obliged to withdraw before being heard in committee, owing to some technical faults; but four years ago we presented a similar bill.—I think I am justified in saying that our arguments were good, but evidently the committee on Public Health must have thought differently for we were speedily given "leave to withdraw."—We had, however, gotten a line on the arguments of the opposition, which consisted of the Grocers' Association, various supply houses and able counsel representing the patent medicine manufacturers' association. Two years ago we re-introduced the bill but were again given leave to withdraw, not, however, until the committee on Public Health had deliberated for several weeks over their decision.

But the propaganda of our arguments was beginning to bear fruit and this year we had prepared our case in the most careful manner. As one of the chief

* Section on Education and Legislation, A. PH. A., Baltimore meeting, 1930.

[1] Secretary Massachusetts State Pharmaceutical Association, 20 Glenn Road, Newton Center, Mass.

arguments in the past had been that this legislation would cause considerable inconvenience to a great many people living miles from any drug store, we had inserted a proviso that where a community had no drug store within a reasonable distance such medicines might be handled by a general store obtaining a permit from and being subject to an inspection by the Board of Pharmacy. Our legislative committee did yeoman work and when the bill was heard in committee over two hundred druggists from all parts of the state crowded the hearing room and impressed the legislators with the idea that they were united in their demand for this legislation.

Our arguments must have impressed the committee favorably, for the bill was reported out of committee without a dissenting vote and our hopes ran high but, alas, there was a fatal slip between the cup and the lip. Various interests got to work upon the legislators, something that too many of the druggists neglected to do, in spite of the efforts of our legislative committee and, on the presentation in the House, the bill was refused a third reading, although ably presented and argued.

And so we were defeated, but not discouraged. The way in which the druggists responded when called upon to attend the hearing before the committee was the most hopeful augury we have had for ultimate success, but much remains to be done before we reach our goal. My belief that conditions in our Commonwealth are very much the same as in other states is my excuse for presenting this paper at this time.

If the druggist is to obtain recognition of his just demands he must interest himself in local politics. He must make an effort to get in touch with his representatives and, better still, he should get in touch with prospective legislators before election and, if necessary, use his influence in his community for or against these prospectives.

Local organizations have here an opportunity to make their influence felt, for nothing impresses a politician like the argument of numbers, and do not forget that every member of your family is a voter nowadays. The story of legislative activity in our state would be incomplete without mention of what looks like a logical sequence of this year's legislative efforts; for the week following the defeat of our bill Governor Allen sent a message to the legislature asking for a recess commission to consider the abuse of habit-forming and dangerous coal tar preparations. There is every reason to believe that this commission will be appointed and in an interview with the Governor I received assurance that there will be at least one practical druggist appointed on this committee, which may turn out to be of considerable importance to pharmacy in our state.

Let me say in conclusion that my experience in legislative activities during the past six years has convinced me that we may aspire to anything that is just and reasonable, provided we will organize and work. It would seem that since pharmacists are compelled to assume ever-increasing burdens in the way of taxation, regulations, educational demands, *et cetera*, they should also benefit by, if not a corresponding, at least a small amount of compensatory legislation. I have faith to believe that organized pharmacy might bring about legislation that will restrict the sale of drugs to drug stores. If this cannot be done it were far better that the commercial side of pharmacy be thrown wide open, and that phar-

macy as a science or profession be left to those who can afford to adopt it as an interesting pastime.

ABSTRACT OF DISCUSSION.

Charles T. Heller said that the time to start work on proposed legislation is to go to the candidates before they are elected and let them know of contemplated legislation, or of opposition to proposed legislation.

Robert P. Fischelis said that in New Jersey they had sent out letters prior to election, but not all of the candidates for the Legislature, supported by the pharmacists, were elected.

A. L. I. Winne said that in Virginia the Secretary spends most of his time at the capitol during legislative sessions. That he had worked with legislators so long that they have confidence in him and, as a result, there is a better chance for securing the desired results. He also stated that when important legislation is up, pharmacists are asked to share in the work by seeing their representatives on the subject under consideration.

FLUECKIGERIANA.*†

BY EDWARD KREMERS.

V. FLUECKIGER LETTERS TO POWER 1882–1890.

Under this caption the writer, in 1924, published several letters written by Professor F. A. Flueckiger to Dr. Frederick Hoffmann between the years of 1891 and 1894. The immediate object had been to glean additional information about the friendship existing between Professor Flueckiger and Dr. E. R. Squibb as a contribution to the life and work of the latter. Unfortunately, Flueckiger's letters to Squibb have been destroyed by fire and, whereas Squibb's letters to Flueckiger are said to have been deposited in the archives of the Pharmaceutical Institute at Strassburg, all efforts to locate them have failed thus far.[1]

The letters to Hoffmann referred to culminate in information concerning Flueckiger's visit to this country as the guest of Squibb in 1894. Having retired from the Strassburg faculty, Flueckiger had returned to Bern to devote the remaining years of his life to the writing of a History of Drugs. No sooner had he settled down to this task when he realized the importance of additional knowledge about American medicinal plants. So, when Dr. Squibb renewed his invitation, Prof. Flueckiger accepted it. Recently, we were supplied with a bird's eye view of this trip by extracts from the diary of Miss Augusta Flueckiger, now the wife of Dr. Oesterle, who, in 1894, had accompanied her father to this country.[2] This sketchy account has been supplemented by letters written by Flueckiger himself, while in this country, to his friend and associate, Tschirch,[3] in Bern; also by an

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* Section on Historical Pharmacy, A. PH. A., Baltimore meeting, 1930.

† Previous contributions under this general caption have appeared in the following order:

I. Briefe Flueckigers and Hoffmann, *N. Y. Apt. Ztg.*, 45 (1924), 110 and 122.

II. Aus dem Tagebuch Augusta Flueckigers, *Ibid.*, 49 (1928), 57.

III. Flueckigers Amerika Briefe an Tschirch, *do.*, 142 and 155; 50 (1929), 1 and 15.

IV. Lloyd's conference with Flueckiger in New York, JOUR. A. PH. A., 19 (1930), 151.

[1] See correspondence in Flueckiger folder with Dr. Paul Dorveaux, Dr. Henri Werner, Prof. Fernand Jadin, Prof. Wolfram, Frau Dr. Oesterle.

[2] See "Flueckigeriana," II.

[3] *Ibidem*, III.

account supplied by J. U. Lloyd.[1] Unfortunately, the fruits of this journey were not permitted to mature for Professor Flueckiger died shortly after his return to Bern.

An additional link between Flueckiger and this country is supplied by the letters herewith given to the pharmaceutical public. While editing Flueckiger's letters to Hoffmann in 1924, the writer wrote to his teacher and friend, Dr. Frederick B. Power, then in Washington, D. C., asking for the loan of letters he had received from Flueckiger. These were promised, but were not readily available at the time because they had been stored in Hudson, N. Y., the former home of Dr. Power. When the National Academy of Science met in Madison in November 1926, Dr. Power came a week earlier than the date set for the meeting in order to visit with old time friends. Again the matter was talked over and again Dr. Power promised to send the letters when a visit to Hudson should enable him to go over papers stored away in his old home. A few months later Dr. Power passed away.

Inasmuch as the life long friend and P. C. P. classmate of Dr. Power, Mr. Henry S. Wellcome, decided to make a special exhibit of Power material in the Wellcome Medical Museum in London, Mrs. Heimké, daughter of Dr. Power, thought it best not to separate the Flueckiger letters from other correspondence of her father. Naturally, the writer gladly relinquished any claims that he had in order that the memory of his teacher and friend might best be preserved. Mrs. Heimké, however, consented to have the letters copied and, at her request, Mr. S. Nevin of the New York office of Burroughs, Wellcome & Co. was kind enough to have photostatic copies prepared for the writer.

For a better understanding, it should be stated that, after having graduated from the Philadelphia College of Pharmacy in 1874, Frederick B. Power, in 1876, went to Strassburg where he studied four years at the newly established "Reichsuniversitaet." During the last year he acted as Flueckiger's assistant and, having received his doctor's degree in 1880, he returned to this country. For several years he was a member of the faculty of the P. C. P. and in 1883 was elected to the Professorship of Pharmacy and Materia Medica at the University of Wisconsin to take charge of the newly established Department of Pharmacy.[2]

The first communication is dated Strassburg July 8, 1882, and was addressed to Philadelphia, as was also the second. The remaining eleven communications were addressed to Madison. Everyone acquainted with Flueckiger and Hanbury's "Pharmacographia" must have realized that the Strassburg professor was well acquainted with the English language. That he should use it in his private correspondence with a former student perfectly familiar with German will, no doubt, come as a surprise to not a few. No attempt has, therefore, been made to correct any orthographic or grammatical errors.

It has already been pointed out that in these letters we have another link that connected Professor Flueckiger with this country. Possibly few of the younger

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[1] *Ibidem.*, IV.

[2] A biographical sketch of Frederick B. Power may be consulted in J. W. England—"The first century of the Philadelphia College of Pharmacy, 1821–1921," page 410. An appreciation of Dr. Power's work as an investigator by Ivor Griffith will be found in the *Am. J. Pharm.*, 96 (1924), 601.

generation of American pharmacists are acquainted with Flueckiger's "China Rinden" and Flueckiger and Tschirch's "Grundzuege der Pharmacognosie," both of which were translated by Power, and both of which are referred to repeatedly in the letters now to be published. No doubt, these letters will prove welcome reading to many a young pharmaceutical scientist who, not content with facts and generalizations, desires to have his science humanized.

This, the first communication, a post-card, is undated by the writer. It bears the postmark Strassburg, Jan. 10, 1883.

"I have been much pleased with your good news and proceeded immediately to Prof. Groth,[1] who is always very obliging as you know. Yet, unfortunately, he says that he has more work at hand than time to perform it. He has carefully preserved, but not yet measured your crystals of *hydrastine*.[2] I fear, the answer will be the same all the year round. Perhaps a few words from yourself would be more successful.

"I see I would not be able to do your work,[3] certainly there will not be any possibility for original investigation, but I think your task as it is quite satisfactory enough. Mind what poor fellows we are in Germany in the so-called Pharmaceutisches Institute![4]—I am occupied with a little monograph: 'Chinarinden,'[5] a pamphlet of about 60 pages with 4 or 5 plates. It will be printed in a few weeks. Perhaps it would be not so bad to cause it to be translated into English. My intention is to part with the old views and to show how the matter is to-day.—Being not sure whether I have returned my thanks to Prof. Maisch[6] for his *extremely nice* 'Mat. medica,'[6] I should be much obliged, if you will kindly tell him how much I am pleased with it.

"With kindest regards.

Yours very truly,

F. A. FLUECKIGER."

This, the second post-card, is likewise undated by the writer, but bears the postmark Strassburg, July 8, 1883 (?), also that of Philadelphia, July 22nd.

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[1] Paul Groth. When after the Franco-Prussian war, the old German university at Strassburg was reorganized as an imperial university, Groth was appointed Professor of Mineralogy, about the same time that Flueckiger was appointed Professor of Pharmacy. He had previously become well known as the author of "Physikalische Krystallographie." Apparently, Power had attended his lectures while at Strassburg and now had expressed a desire to have crystallographic measurements made of the handsome crystals of hydrastine prepared by him.

[2] The following papers on hydrastine were published by Power: On Hydrastine, PROC. A. PH. A., 32 (1884), 448; also *Pharm. Rundschau*, 2 (1884), 212. On a third alkaloid of Hydrastis root, *Pharm. Rundschau*, 9 (1891), 262.

[3] What Flueckiger evidently means to say is that he would not be content to devote so much of his time to routine teaching and other non-productive duties. If Power had few facilities for research, Flueckiger reminds him of the material poverty of the Strassburg Pharmaceutical Institute in which Power had found such great spiritual wealth.

[4] An account of the history of the Pharmaceutical Institute in Strassburg was published in 1906 by Ed. Schaer. See "Festschrift zur Einweihung des neuen pharmazeutischen Institutes der Universitaet Strassburg." However, Flueckiger did not live to see the institute. Power, then Director of the Wellcome Chemical Research Laboratory in London, attended the dedication of the new Institute.

[5] As we shall see later, this book was translated into English by Power.

[6] Maisch was at that time Dean of the P. C. P. and Professor of Botany and Materia Medica whereas Power was Professor of Analytical Chemistry. Maisch's "Materia Medica" appeared in 1882, the second edition in 1885. Hence it must have been the first edition to which Flueckiger refers. His comment on the book "extremely nice" is rather significant. Compared with Flueckiger's "Pharmacognosie des Pflanzenreiches," the second edition of which had appeared in 1881, Maisch's "Materia Medica" was a rather elementary text. One may suspect that, by conveying his thanks indirectly, Flueckiger deliberately avoided writing his American colleague.

"Many thanks for your kind note of Dec. 29th, which just reached me, Jan. 10th. I can only confirm what I wrote, by post-card, a few days ago, to Prof. Maisch,[1] that is, that I shall be pleased with a translation of 'Die Chinarinden'[2] brought out by your care. As to the conditions of the publication you may do as you think proper and also with regard to Dr. Rice.[3] I have also informed the latter of your intention and directed him to agree with you. It would scarcely be prudent to publish the paper before hand in New Remedies[4] and it will now *not* be done *without* your permission.—I am very zealously engaged in the last Part of my new Pharmakognosie,[5] *i. e.*, the new edition, a very tiring task.

"All my family unites in kindest regards to you.—My second son (the 'fighting' lad[6] of 3 years ago!) is now an accomplished physician giving me much satisfaction.

Yours very truly,

F. A. FLUECKIGER."

I shall be able to add a few notes of recent information immediately before you go to press.[7]

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[1] It would seem that Professor Maisch had suggested Dr. Power as translator.

[2] "Die Chinarinden. In Pharmakognostischer Hinsicht dargestellt...." 1883. A review of this treatise appeared in the *Am. J. Pharm.*, 55, p. 56.

[3] Dr. Chas. Rice was not only Pharmacist at the Belleview Hospital, but also Editor of *New Remedies*. Apparently some one had suggested that the translation appear upon the instalment plan in *New Remedies* before being issued in book form.

[4] *New Remedies* were first published as quarterly by Wm. Wood & Co., New York, in 1872 and edited by Horatio C. Wood of Philadelphia. In 1873 Fred A. Castle of New York became editor. From 1876 on it was published monthly with Fred. A. Castle and Chas. Rice as editors. *Pharm. Rundschau*, 12, p. 133.

[5] The first edition of Flueckiger's "Pharmacognosie" had appeared in 1867, the second in 1883 and the third in 1891.

[6] When Dr. Power paid his last visit to Madison in November 1926, he related the incident to which Professor Flueckiger here refers. As a Swiss, Professor Flueckiger was opposed to the German student "Mensur," commonly referred to as duel in this country. (In Germany the duel is a serious affair, whereas the "Mensur" is more a matter of "sport," comparable, with reference to danger, to our football.) One day his son came to him announcing that he was going on a "tour" for a few days. When he returned his face was bandaged revealing that he had been in a "Mensur." The father felt hurt, not so much that his son had taken part in a "Mensur" but rather at the little deception practiced by the son. Apparently, he realized at the time of writing that his son had little choice in the matter and that even the deception practiced was due to filial regard for the father, rather than to any desire to tell an untruth.

[7] The footnote apparently refers to Power's translation of the "Chinarinden" for the English edition of which Flueckiger wanted to supply a few corrections or additions, or both.

(*To be continued*)

THE BRITISH PHARMACOPŒIA.

"We learn from more than one source that the Pharmacopœia Commission is directing the work of preparing the New Edition of the British Pharmacopœia with commendable energy, and that the various sub-committees are doing their job thoroughly and expeditously—so much so that the Pharmacopœia is practically certain to be issued in 1931. It is likely, one understands, to shock the orthodox physician and pharmacist both by its omissions and its inclusions, but it is expected to be a more workmanlike and practical volume than its predecessors." The *Journal and Pharmacist* says that "in view of the long and eventually successful fight to secure adequate recognition of the pharmacist as an essential partner in the production of the British Pharmacopœia, it is interesting to read the animated discussion concerning the directing personnel of the Revision Committee of the United States Pharmacopœia which took place at the recent Convention."

O. HENRY: PHARMACIST.*

BY CHARLES H. LAWALL AND MILLICENT R. LAWALL.

This is not an attempt to prove that because William Sydney Porter, who wrote under the pseudonym of O. Henry, had been for a time a pharmacist, that on this account he was a better writer of short stories; but it is an investigation into the possible influence which his pharmaceutical experience had upon his subsequent work. Indeed, the matter of his pharmaceutical experience has been questioned by no less an authority than the English author and humorist, Stephen Leacock, who wrote an article published in 1916, called "The Amazing Genius of O. Henry." In this article he refers to Mr. Porter's pharmaceutical experience in the following disparaging paragraph:

"From Central America O. Henry rolled, drifted or floated—there was no method in his life—back to Texas again. Here he worked for two weeks in a drug store. This brief experience supplied him all the rest of his life with local color and technical material for his stories. So well has he used it that the obstinate legend still runs that O. Henry was a druggist. A strict examination of his work would show that he knew the names of about seventeen drugs and was able to describe the rolling of pills with the life-like accuracy of one who has rolled them. But it was characteristic instinct for literary values that even on this slender basis O. Henry was able to make his characters "take down from shelves" such mysterious things as *Sod. et Pot. Tart.*, or discuss whether magnesia carbonate or pulverized glycerine (here Mr. Leacock slipped—see 'A Ramble in Aphasia' for the correct reference) is the best excipient, and in moments of high tragedy poison themselves with tincture of aconite."

With all due regard for Mr. Leacock's sagacity, in this case he is incorrect as to fact and wrong as to inference.

A careful compilation of the drugs, chemicals, pharmaceutical preparations and technical terms and phrases peculiar to pharmaceutical literature, shows that instead of seventeen the number reaches nearly one hundred, and there are very few duplications as would be the case if he had only a smattering of the subject, as Mr. Leacock infers. Besides, Mr. Leacock is wrong in his chronology. Mr. Porter's short drug store experience in Texas was not obtained after he returned from Central America, which was in 1896, but twelve years earlier, after he had been sent from his home town and birthplace, Greensboro, North Carolina, because the close confinement in the drug store of his uncle, Clarke Porter, was undermining his health.

Arthur W. Page, a North Carolina author, and for a number of years editor of *World's Work*, has given us the best and most detailed account of Porter's early days in Greensboro. The following extracts are illuminating:

"After the short school days Porter found employment as prescription clerk in the drug store of his uncle Clarke Porter, and it was there that his genius as an artist and writer budded forth and gave the first promise of the work of after years. The old Porter drug store was the social club of the town in those days. A game of chess went on in the back room always, and around the old stove behind the prescription counter the judge, the colonel, the doctor and other local celebrities gathered and discussed affairs of state, the fate of nations, and other things, and incidentally helped themselves to liberal portions of Clarke's *Vini Gallici*, or smoked his cigars without money and without price. There were some rare characters who gathered around that old stove, some queer personalities, and Porter caught them and transferred them to paper

* Section on Historical Pharmacy, Baltimore meeting, 1930.

by both pen and pencil in an illustrated comedy satire that was his first public literary and artistic effort."

As was stated before, this drug store experience ended with a trip to the Texas ranch of Richard and Lee Hall in 1882—and Greensboro never saw him again.

The intervening years between 1882 and 1904, when his stories first began to bring him fame, were filled with romance, comedy and tragedy. The tragedy is concerned with his serving a sentence of nearly five years in the Federal Penitentiary for alleged embezzlement of funds from a bank in Texas, in which he worked for a short time. His friends always believed him innocent of the crime charged against him. Whether this is so or not, the fact remains that the two years that he spent as a fugitive in Central and South America provided him with much of the local color which give his stories distinctiveness and atmosphere.

But let us turn to the stories themselves for evidences of the influence which his pharmaceutical experience had upon his writings. There are half a dozen stories which should be read in full, for either the plot or the details are replete with pharmaceutical interest. The first and best of these is *The Love Philtre of Ikey Schoenstien* from **The Four Million.**

This story is about Ikey Schoenstein, the night clerk in the Blue Light Drug Store located in down town New York between the Bowery and First Avenue. The story is short but full of pharmaceutical atmosphere and of action. Ikey and Chunk McGowan were rivals for the hand of Rosy Riddle, the daughter of Ikey's landlady. "She tinctured all his thoughts; she was the compound extract of everything that was chemically pure and officinal—the Dispensatory contained nothing equal to her." The way in which Ikey, under the guise of helping his rival, planned to circumvent McGowan and bring down upon him the wrath of Rosie's heavy footed father, was cleverly planned, but the manner in which the story ends is one of O. Henry's most startling surprises.

The second best in our opinion is *A Ramble in Aphasia* from **The Trimmed Lamp.** Only the first part of this story deals with pharmacy. It concerns a prominent Denver lawyer who is a victim of pseudo-aphasia, and who finds himself on a train filled with western delegates en route to a pharmaceutical convention in New York. The aphasiac adopts the name of Edward Pinkhammer and claims to be a druggist from Cornopolis, Kansas. Much humor results from the arguments between him and his seatmate Mr. Bolder of Hickory Grove, Missouri, on the proper location of certain shelf bottles and the proper excipient for a pill mass.

Another good story about a drug clerk is *The Enchanted Kiss* from **Roads of Destiny.** This story concerns the love affair of Samuel Tansey, a clerk in a cut rate drug store. Tansey fortifies his soul with several absinthe-anisettes and starts out upon a series of adventures in which chronology, geography and history are all mixed up in a glorious romance of which Tansey is the dominant and heroic character. In the last scene Tansey's inferiority complex comes back with a rush and Fate mixes things up in her usual manner.

A story of an entirely different type is *Let Me Feel Your Pulse* from **Sixes and Sevens.** This is the story of a neurasthenic dipsomaniac and his adventures in search of health. It is full of medical and pharmaceutical terms and is an interesting tale with a touch of grotesqueness very cleverly applied.

And still another, this time of toxicological interest, is *At Arms with Morpheus* from **Sixes and Sevens.** A very short story in which the principal character takes an overdose of morphine, accidentally mistaking it for quinine.

The Gentle Grafter contains a series of stories which have frequent reference to pharmaceutical preparations. Probably the best to read first is *Jeff Peters as a Personal Magnet.* This is one of the best of a series of tales about Jeff Peters and Andy Tucker. These two characters are the most attractive pair of conscienceless swindlers ever described by a writer. Many of the episodes related concerning them have to do with the selling of medicines to the "paretic populace." Jeff is best described by himself in the story just named, and is about the sale of a compound hypothetical pneumo-cardiac antiscorbutic tonic on the main street:

"Jeff Peters has been engaged in as many schemes for making money as there are recipes for cooking rice in Charleston, S. C. Best of all I like to hear him tell of his earlier days when he sold liniments and cough cures on street corners, living hand to mouth, heart to heart with the people, throwing heads or tails with fortune for his last coin. 'I struck Fisher Hill, Arkansaw,' said he, 'in buckskin suit, moccasins, long hair and a thirty carat diamond ring that I got from an actor in Texarkana.' I don't know what he ever did with the pocket knife I swapped him for it. I was Dr. Waugh-hoo, the celebrated Indian medicine man. I carried only one best bet just then, and that was Resurrection Bitters. It was made from life-giving plants and herbs accidentally discovered by Ta-que-la, the beautiful wife of the chief of the Choctaw Nation while gathering truck to garnish a platter of boiled dog for the annual corn dance.

"Business hadn't been good in the last town, so I only had five dollars. I went to the Fisher Hill druggist and he credited me for a half gross of eight ounce bottles and corks. I had the labels and ingredients in my valise, left over from the last town. Life began to look rosy again after I got in my hotel room with the water running from the tap and the Resurrection bottles lining up on the table by the dozen. Fake? No, sir! There was two dollars worth of fluidextract of cinchona and a dime's worth of aniline in that half gross of bitters. I've gone through towns years afterward and had folks ask for 'em again."

Andy is excellently described by Jeff in another story called the *Octopus Marooned,* in the same volume:

"That man was the most talented conniver at stratagems I ever saw. Whenever he saw a dollar in another man's hand he took it as a personal grudge, if he couldn't take it any other way. Andy was educated, too, besides having a lot of useful information. He had acquired a lot of experience out of books, and could talk for hours on any subject connected with ideas and discourse. He had been in every line of graft from lecturing on Palestine with a lot of magic lantern pictures of the annual custom made clothiers association convention at Atlantic City to flooding Connecticut with bogus wood alcohol distilled from nutmegs."

Another story in this volume which has nothing to do with drugs, but which has much to do with education, is that one called *The Chair of Philanthropomathematics.*

Now let us take a ramble through a number of the stories, selecting passages which are of interest from the standpoint of the pharmacist:

A Cosmopolite in a Café from **The Four Millions:** "Anon. he would be telling you of a cold he acquired in a Chicago lake breeze and how old Escamila cured it in Buenos Ayres with a hot infusion of the chuchula weed."

Springtime a la Carte from **The Four Million:** "Had Juliet so seen her love token dishonored the sooner would she have sought the lethean herbs of the good apothecary."

Telemachus Friend from **Heart of the West:** "The whirlpool of squills and chalybeate."

"Paisley drops around with oil of bergamot on his hair."

"Now I give my own recipe for inveigling a woman into that state of affairs when she can be referred to as *née* Jones. Learn how to pick up her hand and hold it and she's yours. It ain't so easy. Some men grab at it so much like they was going to set a dislocation of the shoulder that you can smell the arnica and hear 'em tearing off bandages. Some take it up like a hot horseshoe and hold it off at arms' length like a druggist pouring tincture of asafoetida in a bottle."

The Handbook of Hymen from **Heart of the West:** "I've seen them Eastern college fellows working in camps all through the West, and I never noticed but what education was less of a drawback to 'em than you would think. Why, once over on Snake River, when Andrew McWilliams' saddle horse got the botts he sent a buckboard ten miles for one of these strangers that claimed to be a botanist. But that horse died."

Seats of the Haughty from **Heart of the West:** "Eighteen carat sulphate of copper scarf pin."

The Higher Abdication from **Heart of the West:**

"The saloon was small and in its atmosphere the odors of meat and drink struggled for the ascendancy. The pig and cabbage wrestled with hydrogen and oxygen. Behind the bar Schwegel wrestled with an assistant whose epidermal pores showed no signs of being obstructed."

Cupid a la Carte from **Heart of the West:**

" 'Tis my opinion that the biographies of the heart should be confined with the historical romances of the liver to the advertising pages of the magazines."

"If the drug stores don't run out of pepsin I'll give you a run for your money that'll leave you a dyspeptic at the wind up."

The Missing Chord from **Heart of the West:**

"You would have thought he was a professor of the weather and politics and chemistry and natural history and the origin of derivations. Any subject you brought up Old Cal could give you an abundant synopsis of it from the Greek root up to the time it was sacked and on the market."

The Indian Summer of Dry Valley Johnson from **Heart of the West:**

"Dry Valley shook the bottle. You have to shake the bottle before using, for sulphur will not dissolve. Then Dry Valley saturated a small sponge with the liquid and rubbed it carefully into the roots of his hair. Besides sulphur there was sugar of lead in it and tincture of nux vomica and bay rum. Dry Valley found the recipe in a Sunday newspaper."

Modern Rural Sports from **The Gentle Grafter:**

"How we got off the train there the night before I can't tell you; for she went through the village so fast that what looked like a saloon to us through the car window turned out to be a composite view of a drug store and a water tank two blocks apart.

"When I woke up I heard roosters crowing and smelt something like the fumes of nitromuriatic acid and heard something heavy fall on the floor below us, and a man swearing.

" 'Cheer up, Andy,' says I, 'we're in a rural community. Somebody has just tested a gold brick down stairs.' "

Later:

" 'And say, Jeff, make that succotash fancier give you nice clean new bills. It's a disgrace to our Department of Agriculture, Civil Service and Pure Food Law, the kind of stuff some of these farmers hands out to us.' "

The Exact Science of Matrimony from **The Gentle Grafter:**

"An old friend of mine who used to draw soda water and teeth in a tent show, had made his wife a widow a year before by drinking some dyspepsia cure of the old doctor's instead of the liniment he always got boozed up on."

A Midsummer Masquerade from **The Gentle Grafter:**

"Old Smokeout Smithers who used to be the best open air painless dentist and electric liver pad faker in the Southwest."

"I expected trouble when Andy began to drink. He has the artistic metempsychosis which is half drunk when sober and looks down on airships when stimulated."

Innocents of Broadway from **The Gentle Grafter:**

"One day in the papier maché palm room of a chloral hydrate and hops agency in a side street about eight inches off Broadway, me and Andy had thrust upon us the acquaintance of a New Yorker."

"I can't go off with this man's money without doing something to earn it, like taking advantage of the bankrupt act or leaving a bottle of eczema lotion in his pocket to make it look more like a square deal."

Conscience in Art from **The Gentle Grafter:**

"Well, to make a dense story more condensed, me and Andy cached our Paris green and antipyrine powders and albums in a friend's cellar and took the trail to Pittsburgh."

The Man Higher Up from **The Gentle Grafter:**

"I don't suppose you've brought along any hair tonic or rolled gold watch chains or similar law-defying swindles that you could sell on the plaza to the pikers of the paretic populace, have you?"

A Tempered Wind from **The Gentle Grafter:**

" 'What's your graft these days?' Buckingham Skinner asks me. 'The legitimate,' says I. 'I'm handling rhinestones and Dr. Oleum Sinapis' electric headache battery and the Swiss warblers' bird call, a small lot of new queer ones and twos, and the Bonanza Budget, consisting of a rolled gold wedding and engagement ring, six Egyptian lily bulbs, a combination pickle fork and nail clipper, and fifty engraved visiting cards—no two names alike—all for the sum of thirty-eight cents.' "

"Me and Buck knew more about selling corn salve than we did about Wall Street."

"If you had seen me and Buck the next night you'd have had to go to a little bum hotel over near the West side ferry landings. We was in a little back room, and I was filling up a gross of six-ounce bottles with hydrant water colored red with aniline and flavored with cinnamon. * * * * * * Directly I dragged out my valise and went into it for labels. 'Hair tonic labels are all out,' says I, 'only about a dozen on hand.' 'Buy some more,' says Buck. We investigated our pockets and found we had just enough money to pay our hotel bill in the morning and pay our passage over the ferry.

" 'Plenty of the Shake-the-Shakes Chill Cure labels,' said I, after looking.

" 'What more do you want?' says Buck. 'Slap 'em on. The chill season is just opening up on the Hackensack low grounds. What's hair, anyway, if you've got to shake it off?'

"We pasted on the chill cure labels about half an hour, and Buck says: 'Making an honest living better than that Wall Street, anyhow, ain't it, Pick?'

" 'You bet,' says I."

The following four quotations are from **Roads of Destiny,** under the headings of the different stories in which they occur:

Next to Reading Matter: "Before I sailed I rushed into the *botica* of old Manuel Iquito, a half breed Indian druggist. I could not speak but I pointed to my throat and made a sound like escaping steam. He began to yawn. In an hour, according to the customs of the country, I would have been waited on. I reached across the counter, seized him by the throat and pointed to my own. He yawned once more and thrust into my hand a small bottle containing a black liquid. 'Take one small spoonful every two hours,' says he." * * * * * * "When I went back to Oratama I found out from Manuel Iquito what was in the mixture he gave me for my lost voice. I told you how quick it cured me. He made that stuff from the *chuchula* plant."

"Judson Tate drew an oblong white pasteboard box from his pocket. 'For any cough,' he said, 'or cold or hoarseness, or bronchial affection whatsoever, I have here the greatest remedy in the world. You see the formula printed on the box. Each tablet contains licorice, 2 grains; balsam tolu, $^1/_{10}$ grain; oil of anise, $^1/_{20}$ minim; oil of tar, $^1/_{60}$ minim; oleoresin of cubebs, $^1/_{60}$ minim; fluidextract of chuchula, $^1/_{10}$ minim.' " * * * * * * * " 'I may as well add, to make a clean breast of it, that you can't buy the chuchula plant in the drug stores.' "

The Passing of Black Eagle: "Mamma said he was to ask the drug store man for ten cents worth of paregoric in the bottle."

The Emancipation of Billy: "On the return march the general would invariably suggest that, His Excellency being no doubt fatigued, it would be wise to recuperate for a few minutes at the Drug Emporium of Mr. Appleby R. Fentress ('an elegant gentlemen, sir, one of the Chatham County Fentresses—so many of our best blooded families have had to go into trade, sir, since the war')."

"Mr. Appleby R. Fentress was a connoisseur in fatigue. Indeed, if he had not been his memory alone would have enabled him to prescribe, for the majestic invasion of his pharmacy was a casual happening that had surprised him almost daily for years. Mr. Fentress knew the formula of and possessed the skill to compound a certain potion antagonistic to fatigue, the salient ingredient of which he described (no doubt in pharmaceutical terms) as genuine old hand made Clover Leaf 59, Private Stock."

Two Renegades: "After I got the fever hard enough to kill a Port-au-Prince nigger, I had a relapse in the shape of Doc Milliken. There was a doctor to attend a sick man! If Doc Milliken had your case, he made the terrors of death seem like an invitation to a donkey party. He had the bedside manners of a Piute medicine man and the soothing presence of a dray loaded with iron bridge-girders. When he laid his hands on your fevered brow you felt like Cap John Smith just before Pocohontas went his bail.

"Well, this old medical outrage floated down to my shack when I sent for him. He was built like a shad, and his eyebrows was black, and his white whiskers trickled down from his chin like milk coming out of a sprinkling pot. He had a nigger boy along carrying an old tomato can full of calomel, and a saw.

"Doc felt my pulse and then he began to mess up some calomel with an agricultural implement that belonged to the trowel class.

" 'I don't want any death mask made yet, Doc,' I says, 'nor my liver put in a plaster of Paris cast. I'm sick; and it's medicine I need, not frescoing.'

" 'You're a blame Yankee, ain't you?' asked Doc going on mixing up his Portland cement.

" 'I'm from the North,' says I, 'but I'm a plain man, and don't care for mural decorations. When you get the Isthmus all asphalted over with that boll weevil prescription, would you mind giving me a dose of pain killer, or a little strychnine on toast to ease up this feeling of unhealthiness that I have got?' * * * * * * * 'What I need is more laudanum. If you're mixing that compound gefloxide of gefloxicum for me, please fill my ears with it before you get around to the battle of Gettysburg.'

"By this time Doc Milliken had thrown up a line of fortifications on square pieces of paper; and he says to me: 'Yank, take one of these powders every two hours. They won't kill you. I'll be around again about sundown to see if you're alive.' Old Doc's powders knocked the Chagres fever.

" 'Twas a beautiful system of medical practice introduced by old Doc into that isthmus of land. He'd take that bracket saw and the mild chloride and his hypodermic, and treat anything from a yellow fever to a personal friend." * * * * * * * "Jenks stretched himself and took a morphine tablet."

The Phonograph and the Graft from **Cabbages and Kings:** "A good story is like a bitter pill with the sugar coating on the inside of it."

Here are two from **Options.**

The Head Hunter: "That evening I was taken down with pernicious fever. That is a kind of coast fever with improvements and high geared attachments. Your temperature goes up among the threes and fours and remains there, laughing scornfully and feverishly at the cinchona trees and coal tar derivatives." * * * * * * * "I took to my bed in the two-roomed thatched hut where I had been comfortably established and sent for a gallon of rum. That was not for myself. Drunk, Stamford was the best doctor between the Andes and the Pacific. He came, sat himself at my bedside and drank himself into condition. 'My boy,' said he, 'my lily-white and reformed Romeo, medicine will do you no good. But I will give you quinine, which, being bitter, will arouse in you hatred and anger, two stimulants which will add ten per cent to your chances.' "

The Higher Pragmatism: "But when I come out of my faint I was laying on the floor in a drug store saturated with aromatic spirits of ammonia."

From Rolling Stones:

A Ruler of Men: "There's only one thing bothering me. In novels the light-haired friend of the hero always gets killed. Think 'em all over that you've read and you'll see that I'm right. I think I'll step down to the Botica Espanola and lay in a bottle of walnut stain before war is declared."

Helping the Other Fellow: "She gave me a double handful of bark—calisaya, I think it was—and some more herbs that I was to mix with it, and told me what to do. I was to make a tea of it and give it to him, and keep him from rum for a certain time."

An Unfinished Christmas Story: "The rest of her was yellow. Her hair, in some by-gone age, had been dipped in the fountain of folly presided over by the merry nymph Hydrogen; but now, except at the roots, it had returned to its natural grim and puzzled white."

From **Whirligigs:**

The World and the Door: "Pedrito the Castilian-mannered barkeep, was goaded to extra duty until his agility would have turned a Boston cherry phosphate clerk a pale lilac with envy."

The Hypothesis of Failure: " 'You want to state a hypothetical case?' suggested lawyer Gooch. 'That's the word I was after. Apothecary was the best shot I could make at it in my mind.' "

A Matter of Mean Elevation: "Why are we made serious and solemn and sublime by mountain heights, grave and contemplative by an abundance of overhanging trees, reduced to inconstancy and monkey capers by the ripples on a sandy beach? Did the protoplasm—but enough. The chemists are looking into the matter and before long they will have all life in the table of symbols."

A Blackjack Bargainer: "The tonic air put to shame the pharmacopœia."

From **The Voice of the City:**

The Harbinger: "The base attempt of the drug trust to boost the price of quinine foiled in the House by Congressman Jinks."

The Plutonian Fire: "He talked of the grave, and South America, and prussic acid."

The Easter of the Soul: " 'Tis a bit of tea will do ye good, made from pipsissewa and gentian bark at the druggist's."

From **The Trimmed Lamp:**

The Last Leaf: " 'She has one chance in, let us say, ten,' he said, as he shook down the mercury in his clinical thermometer. 'And that chance is for her to want to live. This way people have of lining up on the side of the undertaker makes the entire pharmacopœia look silly.' "

From **Strictly Business:**

A Municipal Report: "I stepped off the train at 8 P.M. Having searched the thesaurus in vain for adjectives, I must, as a substitution, hie me to a comparison in the form of a recipe.

"Take of London fog, 30 parts; malaria, 10 parts; gas leak, 20 parts; dewdrops gathered in a brick yard at sunrise, 25 parts; odor of honeysuckle, 15 parts; mix.

"The mixture will give you an approximate conception of a Nashville drizzle. It's not so fragrant as a moth ball, nor so thick as pea soup; but 'tis enough, 'twill serve."

A Night in New Arabia: "There was no mandragora in the honorary draught of learning that he had bought. That was before the passage of the Pure Food and Drugs Act." * * * * * * * "She had a wide mouth that kept the peppermint-pepsin tablets rattling like hail from the slot machine wherever she went."

Proof of the Pudding: "She thinks I'm the only genuine preparation on the market that bears the old doctor's signature."

The Duel: (New York) "It woos you to its heart with the subtlety of a siren. It is a combination of Delilah, green Chartreuse, Beethoven, chloral and John L. in his best days."

From **Waifs and Strays:**

The Snow Man: "The man who can stand the test is a snow man, and this is his reading by Fahrenheit, Réaumur, or Moses' carven tablets of stone." * * * * * * * "The snow is not merely a blockade; it is a chemical test. It's a good man who can show a reaction that is not chiefly composed of a drachm or two of potash and magnesia, with traces of Adam, Ananias, Nebuchadnezzar and the fretful porcupine."

Caramba: "Caramba di Sarsaparillio
Cinchona, Peruna, Mondoo;
Bologna, Cologna, Vanillio
Northwestern and eke C. B. Q.
O chili con carne and Piccolo
Mazeppa di Buffalo Bill;
So hurry and drop in your nickle-o
Caramba di Sarsaparill."

From a letter to an admirer requesting a picture:

"I don't believe in inflicting one's picture on the public unless one has done something to justify it, and I never take Peruna."

From *The Marionettes* in **Rolling Stones:** " 'The physician laid back his outer garments and then with a pen-knife slit the shirt-front from coller to waist. He laid his ear to the heart and listened intently.

" 'Mitral regurgitation?' he said softly when he rose. The words ended with the rising inflection of uncertainty. Again he listened long; and this time he said 'Mitral insufficiency,' with the accent of an assured diagnosis." * * * * * * * "Drawing from his pocket a little pad of prescription blanks, he scribbled upon one of them a formula suited, according to the best practice, to the needs of the sufferer. Going to the door of the inner room, he softly called the old woman, gave her the prescription and bade her take it to some drug store and fetch the medicine." * * * * * * "Dr. James looked at his watch. He could call half an hour his own, since before that time the old woman could scarcely return from her mission. Then he sought and found water in a pitcher and a glass tumbler. Opening his medicine case he took out the vial containing the nitroglycerin—'the oil,' as his brethren of the brace and bit term it.

"One drop of the faint yellow, thickish liquid he let fall in the tumbler. He took out his silver hypodermic syringe case and screwed the needle into its place. Carefully measuring each modicum of water in the graduated glass barrel of the syringe, he diluted the one drop with nearly half a tumbler of water. Two hours earlier that night Doctor James had, with that syringe, injected the undiluted liquid into a hole frilled in the lock of a safe, and had destroyed, with one dull explosion, the machinery that controlled the movement of the bolts. He now purposed, with the same means, to shiver the prime machinery of a human being—to rend its heart—and each shock was for the sake of the money to follow.

"The same means, but in a different guise. Whereas, that was the giant in its rude, primary dynamic strength, this was the courtier, whose no less deadly arms were concealed by velvet and lace. For the liquid in the tumbler and in the syringe that the physician carefully filled was now a solution of glonoin, the most powerful heart stimulant known to medical science. Two ounces had riven the solid door of the iron safe; with one-fiftieth part of a minim he was now about to still forever the intricate mechanism of a human life.

"But not immediately. It was not so intended. First there would be a quick increase of vitality; a powerful impetus given to every organ and faculty. The heart would respond bravely to the fatal spur; the blood in the veins return more rapidly to its source.

"But, as Doctor James well knew, over stimulation in this form of heart disease means death, as sure as by a rifle shot. When the clogged arteries should suffer congestion from the increased flow of blood pumped into them by the power of the burglar's 'oil,' they would rapidly become 'no thoroughfare,' and the fountain of life would cease to flow."

Here we have a palpable slip on the part of the author. Nitroglycerin is not soluble in water and could not have been diluted in the manner described, for the administration of a dose. Glonoin is an alcoholic solution of nitroglycerin.

It is said that O. Henry wrote 251 short stories. The foregoing quotations cover 50 stories, or about 20 per cent of the total number that he wrote. This would seem to prove that his pharmaceutical experience had permeated his work in a manner not to be denied.

Christopher Morley has paid a beautiful tribute to this phase of O. Henry's experience in the lines, which are chosen as a fitting conclusion to this article:

O. HENRY, APOTHECARY.—By Christopher Morley.

"Where once he measured camphor, glycerin,
Clove, aloes, potash, peppermint in bars,
And all the oils and essences so keen
That druggists keep in rows of stoppered jars—
Now blender of strange joys more volatile,
The master pharmacist of joy and pain
Dispenses sadness tinctured with a smile
And laughter that dissolves in tears again.
O brave apothecary! You who knew
What dark and acid doses life prefers,
And yet with smiling face resolved to brew
These sparkling potions for your customers—
Glowing with globes of red and purple glass
Your window gladdens travelers who pass."

THE DEPARTMENT OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY

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OHIO SUPREME COURT UPHOLDS STATE BOARD OF PHARMACY.

In February 1915, the Ohio Board of Pharmacy granted a pharmacist certificate to Armand Gardos upon his registration in the District of Columbia. Mr. Gardos continued to renew his certificate until February 1924. Previous to the expiration of his last certificate, he had been convicted of a felony after having been returned to the United States from which he had absented himself. After serving a term in the Atlanta Penitentiary, he found it necessary to change his name to George Armand Gafford and on or about April 1926 he applied to the Ohio Board of Pharmacy for the renewal of his pharmacist certificate in conformity with Section 1308 of the General Code of Ohio, which provides in part that a certificate may be renewed within a period of three years after it expires.

On April 28, 1926, he appeared before the Board and was given a hearing in support of his application for the renewal of his certificate that had lapsed. After testimony had been taken, the Board was unanimous in voting to refuse to renew the certificate. After the refusal to grant a renewal certificate, the applicant did not appeal to the Common Pleas Court from the decision of the Board.

Mr. Gafford appeared before the Board at different times subsequent to the refusal to renew his certificate and at each time the Board refused to reopen his case, although he was permitted to present to the Board any evidence he cared to.

On May 1, 1929, Mr. Gafford submitted to the Board an application for registration upon his registration in the District of Columbia, just the same as he applied for his original registration in 1915. The application was refused for the reason of the record of the applicant on file in the office of the Board.

In addition to conviction of a felony, the records show Mr. Gafford had been guilty of violating the pharmacy laws in Cleveland, Ohio. In June 1929, we were issued a summons from the Court of Common Pleas of Cuyahoga County,

to grant a certificate to George Armand Gafford. The Common Pleas Court reversed the Board and the decision of the court was upheld by the Court of Appeals of Cuyahoga County. The case was then carried to the Ohio Supreme Court and the judgment of the Supreme Court was as follows:

By the Court: This case comes into this court by petition in error from the judgment of the Court of Appeals of Cuyahoga County, affirming the judgment of the Court of Common Pleas, wherein the action of the State Board of Pharmacy in refusing to renew Gafford's certificate authorizing him to practice pharmacy in the State of Ohio was held to be an abuse of discretion and said Board was ordered forthwith to issue to the applicant a renewal of his certificate authorizing him to practice pharmacy in this state.

The action of the Board in refusing to issue such certificate was pursuant to the authority vested in it by the provision of Section 1307, General Code, and was based upon the conceded fact that the applicant had theretofore entered a plea of guilty to a charge of feloniously conspiring to violate the National Prohibition Act, and also aiding in defrauding the Government of large sums of money accruing as taxes upon whisky which was diverted from non-beverage to beverage purposes, and was thereupon committed to the federal prison for the period of one year and one day on each of the two counts.

Cognizance is taken of the federal statutes imposing punishment which stamps this violation as a felony. Under the conceded facts it was an error to hold that, in refusing the applicant a certificate to continue the practice of a profession which would afford him continued opportunity to similarly violate the law, the State Board of Pharmacy had abused the discretion confided in it by statute.

M. N. FORD, *Secretary,*
Ohio Board of Pharmacy.

Judgment Reversed.

A VIRGINIA COURT CASE.

A case which will probably be of interest to Boards throughout the country recently came before the Virginia Board in the shape of an application for reciprocity presented by Harvey B. Topping, of Norfolk, Va.

The applicant is a Virginia citizen, and he presented an application based on registration in Arizona, and the Virginia Board refused registration because it was apparent that the applicant had registered in Arizona on a twenty-year experience provision and not by examination. Virginia does not have any such provision in its law, and the basis of reciprocity is on examination.

Mr. Topping sued the Board of Pharmacy on writ of mandamus to compel registration on his Arizona certificate. The case was tried before Judge Gunn in the Circuit Court of the city of Richmond on January 16, 1930, and the court has recently ruled that the applicant is not entitled to registration in this state on the certificate issued by Arizona.

It was contended in the trial that the applicant was registered by examination in Arizona because he had appeared before the secretary of the Arizona Board and had engaged in an oral discussion of pharmacy, which he contended constituted an examination. The Arizona Board, however, did not record any grades of this represented examination, and the secretary refused to certify to any grades, and the former secretary would not certify to any grades, and both these officials certified that the applicant had registered on his experience.

Further, it was shown to the court that the applicant had resided in Virginia for a number of years prior to the effectiveness of the pharmacy prerequisite law, that he had ample opportunity to take the Virginia examination, having

had something like twenty years' experience at the time he registered in Arizona—1922—and that for a period of over fifteen years he had sufficient experience to appear for examination in Virginia. He did not make any effort to register in this state by examination during that time.

It is the only case of the kind which has occurred in Virginia and the verdict in the case is gratifying, because it is generally understood that such reciprocity is a matter of comity. The Virginia law stipulates that this Board may issue such certificates of registration where they are satisfied that the applicant has met conditions in another state equal to the standards demanded in this state. It does not stipulate that the Board must issue such certificates even if the applicant meets substantially the conditions required in Virginia. Mr. Topping has indicated an intention of carrying the case to a higher court. In case this is done, we believe that the verdict will be the same there as in the present instance.

A. L. I. WINNE, *Secretary*,
Virginia Board of Pharmacy.

J. FULLER FRAMES—MARYLAND BOARD 1862–1930.

The death of J. Fuller Frames on Tuesday, June 24th, at the age of 68, is announced with profound sorrow.

He was a graduate of the Maryland College of Pharmacy and had been a member of the Maryland Board of Pharmacy for the past nineteen years, having served the Board as treasurer and president in addition to acting as the examiner in practical pharmacy. Mr. Frames was regarded as one of the most proficient professional pharmacists in the state and his work throughout a long period of years has been of great value to his profession.

In addition to his many professional and business responsibilities, he found sufficient time to serve as a director of the Northeastern Dispensary, with which institution he had been identified for more than thirty years. He was a member of the Seventh Baptist Church of Baltimore; secretary of the Calvert Drug Company; a member of the AMERICAN PHARMACEUTICAL ASSOCIATION; the National Association of Retail Druggists, the Maryland Pharmaceutical Association and the Baltimore Veteran Druggists' Association, and an honorary member of the N. A. B. P.

Mr. Frames was a man of fine personal character, distinguished in his professional and business life and one who gave freely of his friendship to all who were fortunate enough to come in close contact with him. The death of Mr. Frames really marks the close of an epoch, as he was a pharmacist of the old school, one who held very high the traditions and responsibilities of his calling.

Although he resigned from the Board about the middle of May, he participated in the June examinations, as he appreciated the difficulty involved in conducting the examinations with inexperienced members. Governor Albert C. Ritchie, acting on the recommendation of the Maryland Pharmaceutical Association, had appointed Harry R. Rudy of Hagerstown, Maryland, to fill out Mr. Frames' unexpired term.

The State of Maryland and national pharmacy as well have lost a loyal advocate and faithful worker in the death of Mr. Frames.

PERSONAL ITEMS.

J. W. Gayle, secretary of the Kentucky Board and also our beloved N. A. B. P. treasurer, is spending a few weeks of well deserved vacation at Orr's Island near Portland, Maine, with his daughter.

Secretary Christensen has returned to the office after a seven weeks' trip. He traveled a total of 10,000 miles and visited Nebraska, Colorado, Idaho, Washington, Oregon, California, Nevada, Utah and Wisconsin. Wherever possible, he attended the state pharmaceutical associa-

tion meetings, extending greetings as president of the AMERICAN PHARMACEUTICAL ASSOCIATION, and also took up important Board matters in a number of these states. By the time this issue is mailed out, he will also have attended the meeting of the North Carolina Pharmaceutical Association held in Raleigh, August 11th–12th. (For full report of trip see page 811.)

Edward E. Duryee of the Nebraska Board of Pharmacy adds a new hobby to our already variegated list of avocations for Board members. He is a member of the Society of American Magicians and uses the name EEDO for performances. We are hoping that he will attend a convention soon.

A new honor has come to our old friend "Port" (otherwise known as **W. P. Porterfield** of Fargo, N. Dak.) who recently retired from the North Dakota Board of Pharmacy, as he was only pinch-hitting until the technicalities regarding appointments by the Governor under the pharmacy law were fought out in court, the pharmacists winning, as everyone knows. "Port" is now an honorary member of Rho Chi pharmaceutical fraternity, upon invitation of the chapter at North Dakota Agricultural College. He is the first honorary member of that chapter. Rho Chi is an honorary society for both men and women with branches at most of the colleges of pharmacy; only those in the upper 10% of the classes are eligible for invitation. Mr. Porterfield has been invited as an honorary member because of his outstanding service to pharmacy in North Dakota, and nationally as well.

He is a past-president of the N. A. B. P., and has served several terms on the Executive Committee. Having been a faithful attendant at conventions for many years, there was a very noticeable vacant chair at the Baltimore meeting because he was absent. We insist that as an honorary member he should be as active in the N. A. B. P. as heretofore, and have therefore refused to say "good bye" to him.

Arthur L. Phelps, secretary of the Arizona Board and N. A. B. P. vice-president and Chairman of District No. 9, took the longest way 'round in motoring home from the Baltimore convention. Mrs. Phelps accompanied him. While in Chicago, he honored the central office with a call. His route from there was through the Canadian Rockies, down the Pacific Coast, finishing up with the California state convention at Pasadena in June.

STATE BOARD NEWS.

Alabama.—The Board examined 25 applicants in Birmingham on June 5th and 6th. All were graduates of high school and the three-year course in pharmacy. Of this number, 23 passed.

A resolution was adopted by the Board asking postponement of the four-year college requirement in pharmacy effective in 1932, as the South feels unable to keep pace with the advancing educational standard, having only recently gone to the college requirement. It is felt that the three-year course will be sufficient for some years to come in that section of the country.

Arizona.—Reports of the April meeting show 23 out of 84 candidates passing for certificates as licentiates in pharmacy. Eleven were granted assistant certificates. Eighteen candidates were granted licenses by reciprocity through the N. A. B. P.

The next meeting will be held in Phoenix on November 12th.

Connecticut.—At the annual reorganization meeting of the Board held on June 3rd at Hartford, the following officers were elected for the year: *President*, C. T. Gilbert, Noroton; *Vice-President*, Charles Gustafson, Jr., of Hartford; *Secretary-Treasurer*, H. M. Lerou, Norwich.

Delaware.—At the July examination, nine were examined for the R.Ph. license and four for the assistant certificate. Of these groups, six and three, respectively, passed.

The next examination will be held on October 1st in Newark.

George W. Rhodes of Newark, has been reappointed a member of the Board by Governor Buck for another term of five years, dating from July 1st.

District of Columbia.—The quarterly examination was held on July 10th–11th. Twelve out of thirteen applicants examined were successful.

R. L. Quigley of Washington has been appointed as a member of the Board of Pharmacy by the Commissioners of the District of Columbia to succeed himself for a period of five years.

All the officers were reëlected for the ensuing fiscal year.

Georgia.—At the meeting of the Georgia Board held in Atlanta, June 16th–17th, there were 48 applicants for examination. Fourteen were successful.

In addition to the members of the Board, H. A. Deen of Vidalia who has been elected to succeed Jesse Mitchell when his term expires November 1st, was present.

At this meeting, the Board voted unanimously to discontinue issuing three grades of license and in the future will issue only one—"pharmacist." The former three grades—druggist, apothecary and pharmacist—merely reflected grades and caused a great deal of confusion in reciprocity with other states.

The next examination will be held December 8th and 9th.

Indiana.—Oscar E. Russell of Elkhart, Ind., has been appointed a member of the Board to succeed F. W. Meissner of LaPorte, who retires after many years of faithful service. N. A. B. P. members are well acquainted with Mr. Meissner as he has attended many meetings and been very active in national work. It is hoped that he will continue these activities now as an honorary member.

Kansas.—The report of the examination meeting, held at Lawrence on June 11th–12th, shows 44 out of 90 candidates taking the examination passed.

Mac Childs, of Eldorado, has been elected Secretary of the Board.

Maine.—The Board examined 17 candidates on June 11th and four of them were issued licenses.

The Maine Pharmaceutical Association met at Rangeley on June 25th–27th, total attendance being about 350. There was considerable discussion with regard to much needed revision of the pharmacy law. A committee was appointed, including the members of the Board, to prepare a bill to be presented at the next session of the legislature. The college prerequisite, a change in examination fee and annual registration of pharmacies are among the contemplated changes.

Maryland.—At the Ocean City meeting of the Maryland Board of Pharmacy held on June 24th, Lloyd N. Richardson of Bel Air, was elected President and Robert L. Swain of Baltimore, was reëlected Secretary-Treasurer.

Michigan.—In a recent examination given by the Board, 96 candidates took the R.Ph. examination and 25 passed; 88 tried for the assistant certificate and 19 passed.

Minnesota.—The Board held its July meeting beginning the 14th, and examined a total of 58 candidates for registration as pharmacists. Of this total, 22 successfully passed the examination and were granted registration as pharmacists. Of these 22, all but one were graduates of recognized colleges of pharmacy. Also, among those failing there were 16 who were graduates of recognized colleges but did not make the passing grade.

J. W. Dargavel, secretary, was elected as a delegate from the Board to the meeting of the Association of Dairy, Food and Drug Officials of the U. S., to be held in New Orleans, Nov. 11th–14th, inclusive.

The inspector for the Board of Pharmacy has been working among the country stores for several weeks, and as a result has successfully prosecuted ten cases of violation. Two pharmacists were fined $50 each for violation of the law, and eight merchants paid $50 each for selling aspirin.

Missouri.—For the first time in its history the Missouri Pharmaceutical Association has gone on record as favoring a college pre-requisite law which will require high school graduation as well as graduation from the three-year course in a recognized school or college of pharmacy.

The Midwestern Druggist states that this "will make it possible for licentiates in Missouri to reciprocate with practically all of the states of the Union." While this is true as long as the present three-year course remains in effect, when the four-year course becomes generally effective in 1932, Missouri pharmacists will again find themselves blocked from the majority of states, as these will go on a four-year college basis for applicants matriculating in 1932 and thereafter. Such pharmacists will be forced to take an extra year or more to make up the credit deficiency on the four-year degree and then write *another* examination in the state where they desire to practice.

Nevada.—H. H. Turrittin, secretary of the Nevada Board of Pharmacy, died suddenly a few weeks ago. Both the Nevada Board and the N. A. B. P. have lost a most valuable member, and heartfelt sympathy is expressed to the family in this sudden bereavement.

R. W. Fleming has been elected to take over this secretaryship, and his address is Box 813, Reno.

New Jersey.—The Board of Pharmacy held its reorganization meeting at Spring Lake on June 5th. This meeting marked the conclusion of ten years of service on the part of the retiring

president, Harry E. Bischoff, of Union City, and the beginning of a five-year term by James J. A. Bauman of Ridgewood.

Officers to serve for the ensuing year were elected as follows: *President*, C. Graham McCloskey of Elizabeth; *Vice-President*, Dean B. Crawford of Atlantic City; *Treasurer*, Albert J. Smith of Bradley Beach; *Secretary* and *Chief Chemist*, Robert P. Fischelis of Trenton.

The following assignments were made in connection with the examinations of the Board: *Pharmaceutical and Chemical Mathematics*, Mr. McCloskey; *Theoretical Pharmacy*, Mr. Crawford; *Chemistry*, Mr. Taylor; *Materia Medica and Toxicology*, Mr. Bauman; *Practical Pharmacy*, Mr. Smith. Messrs. Crawford and Bauman are to serve as the Committee on Audit, and Messrs. Messrs. McCloskey and Fischelis as the Committee on Examinations and Research. The entire Board is to serve as the Committee on Legislation.

The following resolution was adopted:

"*Resolved* that the Board of Pharmacy of the State of New Jersey record its appreciation of the faithful and efficient service of Mr. Harry E. Bischoff, who concludes ten years of service at this meeting. It is the unanimous feeling of the members of the Board that Mr. Bischoff's services as a Board Member, Committee Chairman, Vice-President and President, have been of outstanding value to the people of the State of New Jersey.

"*Resolved Further* that a copy of this resolution be spread upon the Minutes of this meeting and be forwarded to the pharmaceutical and lay press."

Examinations were held on July 17th–18th, but the results were not available at the time this issue went to press.

Ohio.—An examination was held in Columbus on June 24th–26th, and 95 of the 135 applicants taking the examination passed. The highest grade 91% was made by Sister Mary Adelaide Krummert, a graduate of Western Reserve University College of Pharmacy. Six applicants were accepted from other states by reciprocity.

The next examination is to be held in Columbus on October 14th and 15th.

Oregon.—John F. Allen of Corvallis, has been appointed a member of the Board of Pharmacy to succeed W. Hal McNair of Ashland, who recently retired.

Pennsylvania.—Secretary Kramer reports that 348 applicants were examined at the June meeting of the Pennsylvania Board. Of the 202 taking the registered pharmacist examination, 79.94% were successful; of the 146 taking the assistant examination, 68.98% were successful.

The next examinations will be held in the Philadelphia and Pittsburgh Colleges of Pharmacy on October 9th, 10th and 11th.

South Carolina.—The Board of Examiners met at Myrtle Beach, July 7th–10th. Thirty-eight applicants were examined, of whom 26 were successful. One reciprocal license was also granted.

John H. Walker of Greer, was elected on the Board of Examiners to succeed W. J. Wannamaker of Orangeburg, who retired recently. J. M. Atkinson of Columbia, succeeds Mr. Wannamaker as secretary of the Board, and has also been made the official inspector.

Virginia.—John E. Jackson, an ex-member of the Board of Pharmacy, was made chairman of a Veterans Branch of the Virginia Pharmaceutical Association recently organized. Twenty-five years' service in pharmacy is the basic requirement for membership.

Edgar Warfield, Sr., a member of the first Board of Pharmacy of Virginia, was made honorary president of the Virginia Pharmaceutical Association at the recent convention. He is eighty-eight years of age, and is actively engaged in the practice of pharmacy every day. His son and grandson work in the same store with him. He was engaged in drug store work in 1857, stopped in 1861 to enter the Confederate army, and at the close of the war re-entered business in Alexandria, Va., where he has been ever since.

H. C. Littlejohn of Leesburg, member of the present Virginia Board, was absent from the June examinations for the first time in many years, the reason being that he was attending the International Rotary meeting in Chicago. Leesburg was represented 100% and won the International cup for attendance, which seldom goes to an American club. Leesburg had a score of 84,200 for traveling 842 miles with 100% membership. The trophy is a silver cup four feet high.

Wyoming.—An examination meeting is announced for Sept. 8th and 9th at Sheridan, Wyo. Write to R. C. Schultz of Worland, secretary, for blanks, etc.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

What a pharmacist should know about Toxicology is a much discussed subject; some taking the view that he should be well-grounded in the subject and others that he should know only the fundamentals regarding the treatments of the more common poisons. The following paper, "The Teaching of Toxicology," by Prof. Clayton S. Smith will be helpful to all teachers of the subject and to the makers of our college curricula.—C. B. JORDAN, *Editor*.

THE TEACHING OF TOXICOLOGY.

BY CLAYTON S. SMITH.

That the pharmacist needs to know something of toxicology has long been recognized. This has been adequately demonstrated by the recent painstaking survey of Dr. Charters and his associates. In their report, "Basic Material for a Pharmaceutical Curriculum," the section on toxicology contains primarily statistical data obtained from eight (8) boards of health, nineteen (19) coroners, fifty-five (55) hospitals and twenty-five (25) physicians relative to cases of poisoning as well as data secured from the reports of 934 retail pharmacists. In addition, the actual poisonous substances prescribed as drawn from a list of 17,577 prescriptions are recorded. The construction of a curriculum by the functional method is a recently developed procedure. So far as I am aware, pharmacy is the only profession outside of the field of education to which it has been applied.

This method of curriculum building applied to pharmacy seeks first to learn what the pharmacist does, and, second, to determine what he must know in order to perform his duties intelligently. The traditional method of curriculum construction is based upon individual opinion, or upon the consensus of opinion of several teachers. A group of men or an individual decides on the basis of personal judgment what shall be included in a given curriculum. By this method courses are often included because of the influence of departments or individuals rather than for the value of the course of a practicing pharmacist. The functional method of curriculum building is objective. Its ideal is to substitute facts for opinion. In their report Dr. Charters and his associates were not quite able to reach this ideal and where gaps occurred in the facts sought, the concensus of opinion of experts was substituted. What is true as to the method for the construction of a curriculum is also true in the development of a course, for the course is an integral part of the curriculum.

In approaching the problem of what shall be included in a course in toxicology we have two methods at our disposal. If it had not been for Dr. Charters' report we would have had only one. To secure the facts necessary for a functional approach requires considerable time and the intelligent coöperation of many individuals. Because we have the statistical data covering the various poisons handled by the pharmacist and the emergency cases treated by him does it mean that the functional method will solve our problem as to what goes into a course in toxicology? I think not. When the functional study of toxicology was undertaken it was originally planned to include with each poison, the organs affected, the symptoms produced and the antidotal treatment. To place the last-named

items in the report on a strictly functional basis would require that only those organs that were found to be affected in the cases actually reported could be included. Likewise, the symptoms would have to have been those observed by the reporting collaborators, and the treatment that which was actually given in the emergency recorded. These facts were not available so the items, organs affected, symptoms and antidotes were left out of the report as printed. All will agree, however, that a course in toxicology should contain something covering these points.

In building up a course in toxicology due cognizance should be taken of the data secured by the objective method and recognition must be made of the traditional method. For convenience toxicology may be divided as follows, clinical and analytical. The classification of drugs will vary depending upon whether the viewpoint is clinical or analytical. Whether the pharmacist should receive any instruction in analytical toxicology is a question upon which there may be a wide difference of opinion. By either the objective approach or the traditional approach the conclusion is reached that the pharmacist should have some definite information about the poisonous substances which he handles. In the section on jurisprudence of Dr. Charters' report mention is made of state laws requiring a poison register and the Federal insecticide, narcotic, prohibition and postal laws. The general intention of these laws is to so regulate the handling of poisonous substances as to reduce the possibility of poisoning. That these laws exist is known in a general way by everyone. By discussing these laws early in the course the student may be brought to realize more fully the importance of toxicology and its relation to society.

The pharmacist sells insecticides and fungicides. These substances include volatile as well as non-volatile poisons as represented by phosphorus and hydrocyanic acid on one hand and strychnine and arsenic on the other. Particularly in the rural districts the pharmacist would be looked upon as an important source of information concerning the composition and use of insecticides and fungicides. While all of the substances used in these preparations are not as dangerous to man as to lower forms of life, yet the ingredients of some contain poisons which are deadly to man. As a group insecticides and fungicides are of considerable toxicological importance.

Pharmacology, or more specifically pharmacodynamics is the basis of clinical toxicology. Before the pharmacist can understand the rationale of treatment he must be able to recognize the symptoms and know the principal action of poison. While pharmacology includes the consideration of other chemicals and medicinal agents particular emphasis should be placed on those drugs which are considered poisonous in the ordinary sense. Assuming that pharmacology precedes toxicology in the curriculum an opportunity will be afforded to stress the poisonous drugs the second time in the course in toxicology.

In his course in posology the student is taught that while he does not prescribe drugs he is legally responsible for the dispensing of the potent ones. The doses of the toxic drugs must be an integral part of his knowledge of toxicology. In addition to the drugs prescribed by the physician the pharmacist must know something of the dose of potent drugs used by veterinarians.

Just how close the relation between toxicology and chemistry should be will

depend upon how much analytical toxicology is included in the course. So far as the clinical side of toxicology goes the intelligent use of antidotes depends in a large measure upon a sound foundation in Chemistry. For convenience in discussing the content in a course in toxicology let us consider the clinical side first.

The pharmacist is supposed to know the standard, lethal and toxic dose of the drug, its poisonous action and the symptoms produced by this action. In addition he should know the antidotal treatment and any danger that might be attendent upon such treatment. What drugs shall be considered in the course and how shall they be classified? A list of drugs that have figured in cases of poisoning is to be found in the section on toxicology of "Basic Material for a Pharmaceutical Curriculum." The list of poisons was drawn from 17,577 prescriptions, the U. S. P. and the N. F., crude drugs found in 1144 retail pharmacies and 27 drug store inventories. The list is adequate for any course but it would be impracticable to consider each drug in detail. The poisons are classified on a physiological basis according to their predominant action. Three main groups are recognized, Corrosives, Irritants and Neurotics. These in turn are subdivided. The Corrosives may be divided into acids, alkalies and phenols. Since these substances are used rather extensively in the industries each of the members of this group should receive some particular attention.

The symptoms produced by the different acids are somewhat similar and vary principally with the concentration. Likewise, the various alkalies produce similar symptoms. In general acid poisoning is treated by the administration of dilute alkalies, an alkali poisoning by the administration of dilute acids. To this general statement the exceptions must be emphasized. Sulphuric acid and water produce heat. In sulphuric acid poisoning the use of water should be avoided or else the water should be given rapidly and in large quantities. In corrosive poisoning with acids the use of bicarbonates internally should be avoided on account of the gas produced. It should also be pointed out that the alkali salts of oxalic acid are as toxic as the acid itself and the antidotal treatment in this case is to render the oxalic acid or its soluble salt inert by the precipitation of insoluble calcium oxalate.

In discussing the irritants the general symptoms produced should be mentioned and the general principles underlying the antidotal treatment outlined. For example, the majority of the irritants affect primarily the gastro-intestinal tract, a few such as poison ivy and poison oak are principally irritants to the skin. The irritants which are most frequently the cause of poisoning should be discussed more fully and some of their characteristic lesions emphasized. Arsenic, mercury and lead seem to me to be the most important of this group.

The neurotic poisons comprise the most varied group from a chemical standpoint. The chemical composition of many of the substances is unknown. Here it should be pointed out that many of the dangerous symptoms are produced by the action of the drug on the nervous system. Chemical antidotes are of value only insofar as they render any poison remaining in the gastro-intestinal tract non-toxic or less easily absorbed. The antidotal treatment in this class of poisoning is pharmacological rather than chemical. In general, the student should be taught to treat cases of poisoning of this class symptomatically. No attempt

should be made to learn the symptoms caused by each drug. However, there are a few that because of certain characteristic symptoms should be emphasized. Among these I would stress morphine, strychnine, cocaine and atropine.

The student also should be given some instruction as to the procedure to follow when neither he nor anyone else concerned with the case has any idea what the poison is.

Coming now to a discussion of analytical toxicology there is probably a wide difference of opinion as to what, if any, should be included in a course in toxicology for pharmacists. From a functional standpoint it may be said that the pharmacist will not be required to make any toxicological examinations of organs, foods or medicine, and, therefore, it is not necessary to include such instruction in the course. On the other hand, the pharmacist does receive instruction in how to make tests for purity of the U. S. P. preparation and how to detect adulterants. This instruction is usually given in some other course than toxicology. Inasmuch as this matter is not entirely foreign to him I see no reason why the pharmacist should not be told how the analyst proceeds to separate poisons into the various groups in order that their detection can more readily be made. He should be given a classification of drugs for analytical purposes. The knowledge he has already acquired concerning the solubility and various properties of drugs will explain why certain drugs fall in the various groups. What is the practical value of giving any analytical toxicology? I believe there are two points that should be mentioned. First, it serves to correlate toxicology with other preceding courses. Second, it gives the pharmacist an intelligent idea of what ought to be done with any material that may come into his possession in connection with a case of poisoning. If he knows something of the subsequent procedure he will know how to preserve the samples uncontaminated for the chemist. He should also be told the importance of preserving the identity of the samples so that he is able to state of his own knowledge just what happened to the sample from the time when he received it until it was delivered to someone in authority. This is of the utmost importance in criminal cases. Cases are frequently lost when there is some question as to the identity of the sample analyzed. Inasmuch as no one knows at the time whether a case of poisoning will turn out to be of a criminal nature the pharmacist should be put on his guard. It is his duty to society to see that the ends of justice are met. Just what laboratory work in analytical toxicology should be included in the course I am not prepared to say. Probably not any, unless the laboratory work should be made to include tests for impurities and adulterants in addition to a few important tests for common poisons. Certainly a pharmacist should not be expected to master a system of toxicological analysis.

To summarize: The course in toxicology should be constructed somewhat as follows:

Introduction.—Discussion of the laws regarding the handling of poisonous drugs showing the relation of toxicology to everyday life.

Discussion of the frequency of cases of poisoning, mentioning the drugs which figure in such cases.

Show the relation between toxicology and insecticides and fungicides, pointing out the importance of this to pharmacists who expect to practice in rural districts.

Point out the importance of a foundation in pharmacology for the proper understanding of toxicology.

Connect posology with toxicology by emphasizing the pharmacist's legal responsibility in regard to potent drugs.

Show that the principles of chemical qualitative analysis are used particularly in the antidotal treatment of inorganic poisoning.

With this introduction the student is shown the relation of toxicology to his preceding courses. He should be taught to look for correlations between toxicology and other courses as the course is developed. In this way he is more likely to overcome the common tendency among students to view each course by itself as something to be passed. It is hoped thus to arouse the student's interest before the substance of the course is actually presented.

The course should be divided into two sections, clinical and analytical.

Clinical Toxicology.—The drugs should be classified in a simple manner, such as corrosives, irritants and neurotics. The characteristic features of each group should be discussed, together with the general symptoms and antidotal treatment. Special features concerning important members of the group should be emphasized. No attempt should be made to have the student memorize a long list of drugs and their antidotes. In an emergency the pharmacist must use his head and it is the general principle that must be stressed.

Analytical Toxicology.—A general statement of the analytical procedure. Emphasis upon the importance of keeping the sample intact so as not to invalidate the analytical results to be obtained later.

It is not necessary that the pharmacist be taught how to make a systematic toxicological examination.

Laboratory work might include tests for purity of various drugs, tests for common preservatives and the more important poisons.

These I believe are the essential features of a course in toxicology. The details of such a course will depend upon its position in the curriculum with reference to closely related courses and upon the time allowed for giving the course.

SHOPKEEPING *vs.* PHARMACY—NOT SO VERY DIFFERENT.

Surely if it be a matter of importance that an artist, himself a professional man, should know something practically of the materials which he employs, to what condition of weakness is the pharmacist reduced who is content to be the mere salesman of the preparations which he offers to the public? There is a scare just now about coöperation, because the British pharmacist has neglected his profession, and trusted solely to his trade. That trade itself has been mostly adventitious, generally precarious and of necessity restricted. No system of coöperation, with its keenest breath of competition, can dethrone or undermine the value of a position gained by acknowledged excellence in the department of pure pharmacy. But if men will starve the laboratory and emulate the Lowther Arcade can we wonder that the world sees little difference between one class of tradesmen and another, and goes to where there is the largest discount?—*The Chemist and Druggist*—"Retrospect of Fifty Years Ago."

"The formation of State Associations was but the beginning of the work which the AMERICAN PHARMACEUTICAL ASSOCIATION has done to touch the life and the problems of the individual pharmacist."

THE SECTIONS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Abstracts of the minutes of the sessions held in Baltimore, May 5 to 9, 1930. (See also report of Scientific Section in July issue of the JOURNAL which contains the Chairman's address, the Secretary's report and other reports of the Sections. The reasons for non-inclusion of the complete minutes are explained.)

The minutes herewith of the Scientific Section deal chiefly with the titles of the papers. The discussions on the papers will be given when the papers are printed. Papers read by title and on which there was no discussion are so reported.

SCIENTIFIC SECTION.

The First Session of the Scientific Section A. PH. A. was convened at 2:00 P.M., May 7th, by Chairman H. A. Langenhan. Vice-Chairman Swanson presided while Chairman Langenhan delivered his address. This is printed in the July number, and also the report of the Committee on the Chairman's Address consisting of Messrs. Taylor, Youngken and McClosky.

The Secretary's report was printed in the July number, also the report of the Committee on Review of Papers and of the Committee on Requirements for Membership.

In the latter connection James A. Munch said that while the conclusions of the Committee were not unexpected he thought that it was a step in the right direction to prescribe qualifications for membership in the A. PH. A. and in its sections.

Chairman John C. Krantz, Jr., reported verbally for the Committee to contact with the National Conference on Pharmaceutical Research. He said there had been continuous co-operation between the officers of the Scientific Section and of the National Conference on Pharmaceutical Research. The report was accepted.

Chairman Langenhan appointed the following as members of the Committee on Nominations: Bibbins, Zeigler and Terry.

The following papers were presented:

"The Analysis of Ethylene and Diamine and Theophyllin," by Philip W. Schmitt.—Discussion.

"The Phytochemical Study of Hydrastis," by H. A. Langenhan and Edwin Gillis.—Discussion.

"Reaction of Bismuth Magma, N. F. V," by K. W. Smith and R. E. Schoetzow.—Discussion.

"Laboratory Notes on Alcohol Determinations," by R. E. Schoetzow.—Discussion.

"A Statistical Study of the Pharmacopœial Constant of Oleum Chenopodii," by James C. Munch and Wm. F. Reindollar.—Discussion.

"Further Studies on Viburnum," by Heber W. Youngken, James C. Munch and Florein J. Amrhein.—Discussion.

"Further Studies on the Salvarsans and Related Compounds," by C. N. Myers.—Discussion.

"The Preparation of A. A. Diamino Pyridine," by E. C. Billheimer and W. G. Christiansen.—Discussion.

"The U. S. P. Strophanthus Standard," by L. W. Rowe.

"The Application of Statistical Methods to Pharmaceutical Research. I. Measures of Accuracy," by James C. Munch.

"The Application of Statistical Methods to Pharmaceutical Research. II. Correlation Co-efficients," by James C. Munch.

"Bio-assay of Capsicums and Chillies. II. The Pungency of Oleoresins Prepared with Various Solvents," by James C. Munch.

"The Studies on Alkali Bismuth Tartrates from the Chemical and Biological Standpoint," by A. E. Jurist and W. G. Christiansen.—Discussion.

"Corrosion of Metals by Iodine," by B. L. Meredith and W. G. Christiansen.—Discussion.

"Use of Barium Oxide for the Dehydration of Alcohol," by B. L. Meredith and W. G. Christiansen.—Discussion.

There was no discussion on the following papers:

"Arsenic Determination in Bismuth and Barium Salts," by L. W. Green and R. E. Schoetzow.

"The Chemical and Biological Assays of Oleum Chenopodii," by Wm. F. Reindollar and James C. Munch.

The following papers were read by title:

"Physics in Pharmacy, Part III, on Unusual Drops and Bubbles," by John Uri Lloyd, Wolfgang Ostwald and Walter Haller.

"The Deportment of Camphor, Monobromated, in Reference to Compressed Medicinal Tablets," by George E. Ėwe.

"The Market Quality of Pharmaceutical Raw Materials," by George E. Ėwe.

"Comments Pertinent to the Coming Revisions of the U. S. P. and N. F.," by George E. Ėwe.

"The Preparation of 3-Carbamido-4-Hydroxyphenylarsonia Acid," by W. G. Christiansen and A. E. Jurist.

"A Comparison of the p_H of Neoarsphenamine and Sulpharsphenamine in Relation to Differences in Their Structure," by A. E. Jurist and W. G. Christiansen.

"The Preparation of Propadiene Free of Toxic Impurities," by Wm. A. Lott and W. G. Christiansen.

"A Study of Ethanolamine Soaps," by Wm. A. Lott and W. G. Christiansen.

"A Study of Cocoanut Oil Soap and Soaps of Its Various Fatty Acids," by Wm. A. Lott and W. G. Christiansen.

"Vapor Pressure of Dichlor Ethyl Ether," by B. L. Meredith and W. G. Christiansen.

"Purification of Dynamite and Saponification Grade Glycerin," by A. E. Briod and W. G. Christiansen.

"A Study of the Darkening of Cod Liver Oil in the Presence of Iron," by A. E. Briod and W. G. Christiansen.

"Examination of the Fatty Oil of Echinacea," by S. H. Culter and Edward Kremers.

"Emulsions," by C. O. Lee and Edward Kremers.

"The Interaction between Thymoquinone and Potassium Sulphite," by W. W. F. Enz and Edward Kremers.

"Plant Breeding Experiments with the Genus Aconitum, Plates 12–15," by William J. Bonisteel.

JOINT SESSION SCIENTIFIC SECTION AND SECTION ON PRACTICAL PHARMACY AND DISPENSING.

The Joint Session of the Scientific Section and the Section on Practical Pharmacy and Dispensing was called to order by Chairman H. C. Newton of the Section on Practical Pharmacy and Dispensing.

The following reports were presented and accepted by the Joint Session:

Report on the United States Pharmacopœia, by E. Fullerton Cook.

Report on the National Formulary, by E. N. Gathercoal.

Report of the Committee on Unofficial Standards, by E. N. Gathercoal.

The session was then turned over to Chairman H. A. Langenhan of the Scientific Section.

The following reports by the respective chairmen were presented and accepted:

Report on the Committee on Ebert Prize, by Glenn L. Jenkins.

Report on Pharmaceutical Recipe Book, by J. Leon Lascoff.

Report on Glass Standardization, by H. V. Arny.

A paper on "The Extent of Use of Familiar Pharmacopœial Products," was presented by E. Fullerton Cook and Harvey P. Frank.

The Joint Session of the Scientific Section and the Section on Practical Pharmacy and Dispensing was then adjourned.

SECOND SESSION.

The Second Session of the Scientific Section was called to order by Chairman Langenhan, May 8th, at 2:00 P.M.

Papers were then presented in the following order:

"The Important Factors of Digitalis Standardization with a New Method of Assay," by Wm. I. Nyiri and Louis DuBois.—Discussion.

"Comparative Pharmacology of Iodine and Mercurochrome," by David I. Macht.—Discussion.

"Pharmacological Comparison of Twenty-Three Isomeric Octyl Alcohols," by David I. Macht and Harriett P. Leach.—Discussion.

"A Study of the Action of Phenylpropanolamine upon the Blood Sugar of Rabbits," by John C. Krantz, Jr., and Walter H. Hartung.—Discussion.

"Certain Aspects on Carbohydrate Metabolism," by John C. Krantz, Jr.—Discussion.

"The Pharmacology and Pharmacognosy of the Cactacea. II. The Action of Certain Species upon the Central Nervous System," by James C. Munch and H. H. Crosbie.—Discussion.

"The Physiological Potency of Commercial Ergot Preparations," by Wm. T. McClosky, M. R. Thompson and N. G. Barbella.—Discussion.

"The Effect of Stabilizers in Lard in Relation to Its Use in Ointment of Potassium Iodide N. F. V," by Wm. J. Husa.—Discussion.

"Hydrolysis of Arsenous Iodide," by Wm. J. Husa.—Discussion.

"Some Organic Antiseptics," by Fitzgerald Dunning.—Discussion.

The following papers were presented without discussion:

"The Stabilization of Solution of Arsenous and Mercuric Iodide, U. S. P. X," by Wm. J. Husa and W. W. F. Enz.

"The Pharmacology and Pharmacognosy of the Cactacea. III. The Action of Certain Species upon the Heart," by James C. Munch and H. H. Crosbie.

"Comparative Assays of Cannabis and Jamaica Dogwood upon Dogs and Rabbits," by James C. Munch.

"Alopecia among Animals Resulting from Thallium Poisoning," by F. E. Garlough and Justus C. Ward.

"Colorimetric Method for Assay of Ergot," M. I. Smith.

"A Potentiometric Assay of Cinchona Bark," by John C. Krantz, Jr.

"A Progress Report on the Estimation of Ethyl Nitrite in Copaiba Mixture, N. F.," by W. G. Crockett, W. M. Frayser and G. V. Thompson.

"Further Studies upon the Masking of the Apparent Bitterness of Strychnine," by Justus C. Ward and James C. Munch.

"The Citric Acid Assay of Solution of Magnesium Citrate," by H. V. Arny and Hugo H. Schaefer.

The following papers were read by title.

"U. S. P. Biological Assay of Cod Liver Oil, Present and Future," by John F. Anderson.

"The Quality of Tincture of Aconite," by H. B. Haag and L. W. Hawkins.

"Studies on the Toxicity, Absorption and Elimination of Nupercain," by W. R. Bond and N. Bloom.

Chairman Langenhan called for the report of the Committee on Monographs. The report is published in the July number. It was voted to accept the report and adopt the recommendations with the exception of the sixth section, which was left to the Committee for decision.

The report of the Committee on the Chairman's address was read. It is printed in the July number of the JOURNAL.

The Committee on review of papers was appointed by Chairman Langenhan. The members are: Messrs. Jenkins, Swanson and Husa.

The Committee on Nominations presented the following names for officers of the ensuing year:

Chairman, E. E. Swanson, Indiana; *First Vice-President*, L. E. Warren, District of Columbia; *Second Vice-Chairman*, Wm. J. Husa, Florida; *Secretary*, L. W. Rowe, Michigan; *Delegate to the House of Delegates*, H. A. Langenhan, Washington.

The officers named were then elected in due order and the Scientific Section was then adjourned.

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON THE RECIPE BOOK.

To the Members of the House of Delegates, A. Ph. A.:

Your Chairman begs to submit the following report on the Recipe Book, for the year 1929–1930:

Considering the fact that very little publicity has been given to the Recipe Book, your Chairman wishes to report that the sales for the past year have been indeed encouraging. During the year 1929, 2116 copies of the volume were sold. This is a very creditable showing, but your Chairman wishes to state the opinion that the number of sales might be greatly increased if more publicity and advertising were given to this Recipe Book. Your Chairman, without expense to the ASSOCIATION, placed an advertisement in several pharmaceutical journals, but these advertisements appeared in only one issue. On behalf of the ASSOCIATION I wish to take this opportunity to thank the JOURNAL A. PH. A., *The Druggists Circular*, *The Practical Druggist* and the *American Druggist*, for their coöperation in advertising our Recipe Book. I also wish to thank Mr. Gray, of Chicago who very kindly placed a notice about the Recipe Book in the *C. R. D. A. News*, and *N. A. R. D. Journal* without cost to the ASSOCIATION.

During the year but very few adverse criticisms have been made by pharmacists.

One criticism made was regarding the directions given for the manufacture of Infusion of Calumba. Our Recipe Book advises the use of hot water in making this infusion. This method, according to Greenish, is the best method, since it coagulates the albumen which is present in the root and which is more susceptible to change than the starch which is extracted. However, the method given in the British Pharmacopœia, and the one which the concensus of opinion seems to favor, is the cold method. By this method the starch is not extracted, but the albumen is. It would seem, then, that the ideal method of preparing Infusion Calumba is to extract the root with cold water, leaving the starch behind, and then to heat the infusion to boiling, in order to coagulate the albumen present. By this method both of the objectionable ingredients are removed. Your Chairman suggests that this method should be incorporated in the next revision of the Recipe Book.

Another criticism which was received referred to the greasless cream, the formula for which is given on page 357 of the Recipe Book. The party concerned stated that he could not make the cream according to the formula and directions given in the Recipe Book. I experimented again with this product, and found the formula and the finished product obtained thereby to be perfectly satisfactory.

A few criticisms were also received about the method of indexing as well as that of abbreviating the hospitals. No other criticisms of any sort have been received by your Chairman.

Considering the number of books already sold, it seems to your Chairman that the Committee should begin to consider the task of revising the Recipe Book. Some deletions may be desirable and a number of additions made.

Last year, your Chairman presented a list of formulas, fifteen in number, which he thought it desirable to include in the next Revision.

There are a number of other formulas about which I have been frequently asked, among them being:

Doranti's Solution.

Iodine	1 part
Guaiacol	2 parts
Creosote	5 parts
Glycerin	100 parts

Linimentum Menthol.

Menthol	3 parts
Chloroform	4 parts
Olive Oil ad	16 parts

Calendula Ointment.

Fluidextract Calendulæ	10.0
Unguentum Simplicis ad	100.0

Calamine Oil Lotion.

Calamine	12.5 Gm.
Zinc Oxide	12.5 Gm.
Lime Water	50.0 cc.
Olive Oil	16.6 cc.
Rose Water ad	100.0 cc.

Creosote and Carbolic Inhalant.

Creosote	
Carbolic Acid, of each,	6.3 cc.
Tincture Iodine	12.5 cc.
Alcohol ad	100.0 cc.

Atropine Ointment.

Atropine	2 parts
Oleic Acid (by weight)	8 parts
Lard	90 parts

Iodized Phenol (Pigmentum Phenol Iodati).

Iodine	10.0 Gm.
Liquefied Phenol ad	100.0

After-Shaving Lotion.

Alum	0.18 Gm.
Glycerin	11.00 cc.
Witch Hazel	16.60 cc.
Perfumed Spirit (Spiritus Odoratus) ad	100.00 cc.

Aromatic Syrup of Cascara.

Fluidextract of Cascara Sagrada	8 parts
Tincture of Orange	2 parts
Alcohol	1 part
Cinnamon Water	3 parts
Syrup	6 parts

Your Chairman takes this opportunity to also propose that a *Table of Solubilities* and *Dose Table*, together with *Antidotes for Poisons*, be added to the next Revision of the Recipe Book. The *Table of Solubilities* should include not only the chemicals or drugs official in the United States Pharmacopœia, but also those synthetic chemicals which are in daily use in every pharmacy. A similar table of solubilities prepared by your Chairman was published in the *American Druggist*, and in the "American Druggist Green Book."

Since the AMERICAN PHARMACEUTICAL ASSOCIATION meeting will be held in Baltimore on May 5, 1930, your Chairman will call a meeting in that city, for the reason that the majority of the members of the Committee will be present at this meeting.

On November 27, 1929, the AMERICAN PHARMACEUTICAL ASSOCIATION, through the death of Mr. Henry P. Utech, lost a beloved friend and fellow member—an active member of our Committee. Your Chairman, on behalf of the ASSOCIATION, takes this opportunity to express the deep regrets and to extend the sympathy of the AMERICAN PHARMACEUTICAL ASSOCIATION to the bereaved.

On December 10, 1929, I received a letter from President Dunning, in which he suggested an appointment to fill the vacancy caused by the death of Mr. Utech, and in which he asked advice as to a suitable candidate. Your Chairman wishes to report that Mr. Roach of Oklahoma City was appointed to the Committee to succeed Henry P. Utech.

Again, I wish to thank Editor Griffith and members of the Committee for their efforts in making the Recipe Book a success, and I wish, at this time, to ask of these members that they continue their good work and make every effort to sell and encourage the sale of as many volumes as possible to their friends in pharmacy. Your Chairman cannot recommend too strongly the use of advertising, and publicity in general, to aid in the sale of the Recipe Book. It is his hope that by next year he will be able to report that the entire allotment has been sold.

I take this opportunity to thank Secretary Kelly and Editor Eberle for their kind assistance, and to thank once more all of the members of the AMERICAN PHARMACEUTICAL ASSOCIATION who aided in establishing the success of the Recipe Book. The Recipe Book is a distinct achievement, and from my own experience in using it as a book of reference, I can claim it for a position with other books of reference of great value to every pharmacist and pharmaceutical manufacturer.

Respectfully submitted,

J. LEON LASCOFF, *Chairman.*

On motion by Jacob Diner, duly seconded, the report was accepted.

REPORT OF THE COMMITTEE ON COSMETICS.

Baltimore, Md., May 7, 1930.

To the Members of the House of Delegates, A. Ph. A.:

The Committee on Cosmetics recommended at the Rapid City meeting that an attempt be made to obtain a sufficient sum of money to finance a program of investigation of a biblio-

graphic nature. While we have been hopeful that these funds might be secured, little progress has been made up to this time, and your Committee can only report that its plans are more clarified.

Legal regulation of the composition of cosmetics is being continually urged by a number of groups, notably those comprised of health officials and of federated women's clubs. As the agitation increases, it seems likely that its results will appear in the form of new bills aimed at the regulation of this traffic. Some of these bills will be wisely drawn, but as a result of the arbitrary and unwarranted character of the remainder, all will probably go down together. Meanwhile, the popular demand for such legislation will continue to grow until action is finally forced upon law-making bodies.

Cosmetic legislation, if adopted, will place added responsibilities upon the shoulders of the pharmacist. The AMERICAN PHARMACEUTICAL ASSOCIATION, therefore, should not establish any fixed policy upon this subject until it is in full possession of the facts regarding the physiological effects of cosmetic agents.

The more than casual observer realizes that there are some agents used for cosmetic purposes that are of doubtful safety. There are others which only occasionally cause disturbance, due doubtless to unusual susceptibility of the user. The public does not appreciate this difference, and classes all together as dangerous.

The Committee therefore recommends:

1. That it be authorized to solicit funds for the purpose of conducting an unbiased search of the literature by a competent person who can devote his full time to the work until accomplished; these funds to be administered by the proper officers of the ASSOCIATION. The purpose of this search is to prepare a complete list of the types of preparations classed as cosmetics, to learn what agents enter into the composition of cosmetic preparations, and to learn what harmful effects, if any, have been attributed to these agents or preparations.

2. That the Committee be authorized, following the compilation of this report and its careful analysis by the Committee, to confer with dermatological and other competent specialists, in order that it may have the advantage of the best medical knowledge in the preparation of its report to the ASSOCIATION.

Respectfully submitted,

F. W. NITARDY A. G. DUMEZ
CHARLES H. LAWALL GEO. D. BEAL, *Chairman.*

On motion, duly seconded, the report was accepted.

STEPS OF A. PH. A. PROGRESS—PHARMACISTS COMMISSIONED.

The advancement of higher educational requirements; success accomplished in the recognition of pharmacists in the Parker Bill, commissioning them, and also classification as "professional" by the Personnel Classification Board, mark steps of progress. They represent results of AMERICAN PHARMACEUTICAL ASSOCIATION endeavor and the splendid coöperation of other organizations.

The enactment of the Parker Bill into law gave recognition to pharmacy by placing pharmacists on the same basis—as to the appointment, pay, promotion, disability, privileges, etc.—as medical officers. Progress is now being made under the law and examinations have been held. E. M. Holt and E. B. Scott, both of Washington, who for a number of years have been pharmacists in the Public Health Service, under Civil Service status, have received commissions in the regular commissioned Corps, after having successfully passed the required physical and professional examinations. They are the first two pharmacists to receive commissions and have been named by Surgeon General Cumming to conduct the examinations necessary for eligibles in the Corps.

BETTER CONTROL OF NARCOTIC DRUGS.

In response to his invitation, representatives of medical, dental, pharmaceutical and veterinary associations, and of other scientific associations and agencies conferred with Surgeon General Cumming in Washington on August 12, 1930 with reference to carrying into effect the provisions of the Act approved June 14, 1930, and generally known as the Porter Bill, whereby the Surgeon General of the Public Health Service is authorized and directed "to make such studies and investigations as may be necessary of the abusive use of narcotic drugs; of the quantities of crude opium, coca leaves, and their salts, derivatives and preparations, together with such reserves thereof, as are necessary to supply the normal and emergency medicinal and scientific requirements of the United States.—The results of such studies and investigations—shall be made available to the Commissioner of Narcotics, to be used at his discretion in determining the amount of crude opium and coca leaves to be imported under the Narcotic Drugs Import and Export Act, as amended."

The conference was called to consider (A) the necessity for, and (B) the methods to be used in carrying out the provisions above quoted and under which the Public Health Service may be considered as the official coördinating agency for bringing together a composite opinion of the medical and scientific professions upon this subject and to determine by studies and investigations the quantities of such drugs as are necessary for medicinal and scientific uses and to provide adequate reserves.

Acting Commissioner of Narcotics H. J. Anslinger and Assistant Surgeon General W. L. Treadway, in charge of the Division of Hygiene, Public Health Service, assisted Dr. Cumming in conducting the conference which was most harmonious and satisfactory in results.

The following agenda was employed:

Morning Session.

A. THE NECESSITIES FOR STUDIES AND INVESTIGATIONS:

1. Federal Control of Narcotic Drugs Respecting Imports, Manufacture, Distribution and Sale.
2. Statistical Analysis of Sales and Distribution of Narcotic Drugs in the United States with Special Reference to Medicinal Requirements.
3. How Important Is the Theoretical Diversion of Drugs from the Legitimate Channels, and What Rôle Can a Scientific Study of Dispensing Methods Play in Determining the Extent of Such Diversion?
4. Is the Present System of Analyzing Manufacturers' and Wholesalers' Sales Adequate to Establish a Reasonable Estimate of the Medical and Scientific Needs of the United States Respecting Narcotic Drugs?

Afternoon Session.

B. METHODS OF STUDY AND INVESTIGATION:

1. Principles Involved in Previous Studies and Investigations Respecting Medicinal and Scientific Needs.
   League of Nations Survey
   Public Health Service Survey
   Bureau of Social Hygiene Survey
2. The Advisability of Analyzing the Records of General and Special Hospitals of Institutions with Reference to the Indispensable Uses. Ill-Advised Uses, and Diversions from Legitimate Channels, of Narcotic Drugs as a Basis for Determining the Normal Medicinal and Scientific Requirements, and What Official and Unofficial Agencies May Be Expected to Furnish These Data.
3. The Advisability of Analyzing the Prescription Records on File in Pharmacies with Reference to the Indispensable Uses, Ill-Advised Uses and Diversions from Legitimate Channels, of Narcotic Drugs as a Basis for Determining the Normal Medicinal and Scientific Requirements, and What Official and Unofficial Agencies May Be Expected to Furnish These Data.

4. The Advisability of Analyzing the Records of Dispensing Physicians with Reference to the Indispensable Uses, Ill-Advised Uses, and Diversions from Legitimate Channels, of Narcotic Drugs, and What Official and Unofficial Agencies May Be Expected to Furnish These Data.
5. The Advisability of Analyzing the Records of Pharmacists and Dispensing Physicians with Reference to the Indispensable Uses, Ill-Advised Uses, and Diversions from Legitimate Channels, of the So-Called Exempt Preparations Containing Narcotic Drugs, and What Official and Unofficial Agencies May Be Expected to Furnish These Data.
6. The Advisability of Utilizing Morbidity and Mortality Reports and Statistics as a Basis for Estimating the Sickness Expectancy Rate for Various Types of Illness and Utilizing Such Data for Estimating the Medicinal Requirements Respecting Narcotic Drugs.
7. The Advisability of Undertaking an Educational Program on the Indispensable Uses of Narcotic Drugs, and What Official and Unofficial Agencies May Be Expected to Contribute to Such a Program.

Subordinate Inquiries.

1. The Advisability of Utilizing a Compilation of the Results of Previous Studies and Investigations Made of the Medical Needs as a Basis for the Immediate Determination of the Medicinal Needs in Accordance with the Act of June 14, 1930.
2. The Trend of Opinion on the Uses of Morphine and the Substitution of Codeine or other Opium Alkaloids or Alkaloid Salts.
3. The Trend of Opinion on the Substitution of Synthetic Products for Cocaine for Any Medical Purpose.

The organizations taking part in the conference and their representatives are:

AMERICAN DENTAL ASSOCIATION: Drs. Mark Finley, William M. Simkins, C. Willard Camalier, Homer C. Brown.

AMERICAN DRUG MANUFACTURERS' ASSOCIATION: Messrs. George W. Merck, J. J. Kerrigan, S. W. Walker, F. J. McDonough, A. C. Boylston, F. O. Taylor, A. Homer Smith, Eugene Schaefer, Carson P. Frailey.

AMERICAN HOSPITAL ASSOCIATION: Colonel John D. McLean.

AMERICAN INSTITUTE OF HOMEOPATHY: Captain Joel T. Boone and Dr. J. B. Gregg Custis.

AMERICAN MEDICAL ASSOCIATION: Drs. Wm. Gerry Morgan, W. C. Woodward, R. L. Anderson, Reid Hunt.

AMERICAN MEDICAL EDITORS' AND AUTHORS' ASSOCIATION: Brigadier General Jefferson R. Kean, Professor E. G. Eberle, Robert P. Fischelis.

AMERICAN PHARMACEUTICAL ASSOCIATION: Drs. A. G. DuMez, E. G. Eberle, S. L. Hilton, E. F. Kelly, R. L. Swain.

AMERICAN VETERINARY MEDICAL ASSOCIATION: Drs. John P. Turner, R. S. Amadon, H. J. Milks, O. V. Brumley.

BUREAU OF SOCIAL HYGIENE, INCORPORATED: Mr. John D. Farnham.

COMMITTEE ON DRUG ADDICTION: Dr. Charles E. Terry.

NATIONAL MEDICAL ASSOCIATION: Dr. William H. Wilson.

NATIONAL RESEARCH COUNCIL: Drs. William Charles White, Walter L. Treadway, Lyndon F. Small.

THE CHEMICAL FOUNDATION, INCORPORATED: Mr. William W. Buffum.

THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS: Messrs. Frank T. Stone, Ambrose Hunsberger, Samuel C. Henry.

GOVERNMENTAL AGENCIES.

BUREAU OF NARCOTICS: Messrs. S. H. Breidenbach, A. L. Tennyson, H. J. Anslinger.

DEPARTMENT OF AGRICULTURE: Drs. J. J. Durrett, F. J. Cullen, H. E. Moskey.

DEPARTMENT OF THE INTERIOR: Dr. L. W. White.

DEPARTMENT OF THE NAVY: Captain W. H. Bell.

STATE DEPARTMENT: Messrs. J. K. Caldwell, Stewart J. Fuller, Max H. Hamilton.
UNITED STATES PUBLIC HEALTH SERVICE: Dr. Walter L. Treadway, Dr. G. W. McCoy, Professor Claude S. Hudson, Mr. Selwyn D. Collins, Mr. Rollo H. Britten, Mr. R. D. Kinsey.
UNITED STATES VETERANS BUREAU: Dr. Joseph F. Barry.
WAR DEPARTMENT: Colonel J. B. Huggins, Lieutenant Colonel E. C. Jones.

The discussions were very instructive and will be commented upon more fully in later issues. They brought out the necessity for closer coöperation between the various groups charged by law with the importation, manufacture, distribution, dispensing and administration of narcotics and emphasized the extensive efforts being made to curtail the use of narcotics in illness and to replace them by non-habit forming drugs as rapidly as possible. It was interesting that the results of studies by the Public Health Service and the Committee on Drug Addiction in various representative communities in the United States, of the per capita legal consumption of narcotic drugs gave a total which compared quite closely with the annual importations which further confirmed the general expression of opinion that the diversion to illegitimate uses through legal channels was relatively small. The "ill-advised" use of narcotics in medical treatment and the use of exempt narcotic preparations without professional advice seemed to offer the best opportunities for reduction. Replacement, however, was the real and final objective and the almost complete disappearance of cocaine from dental practice and the elimination of heroin from medical practice were referred to as object lessons in replacement. The Committee on Drug Addiction, Division of Medical Sciences, National Research Council is directing research on twelve synthetic products which it is hoped will relieve pain without causing addiction and urge a combined effort toward "replacing every legitimate use of habit-forming drugs in medicine."

The following six procedures were worked out by the conference:

Complete analysis of hospital records, with a request that the American Medical Association coöperate in studying normal medical and scientific requirements.
Detailed scanning of prescriptions to determine ill-advised dispensation of narcotics.
Analysis of records of dispensing physicians.
Analysis, with the assistance of the AMERICAN PHARMACEUTICAL ASSOCIATION, of sale and use of so-called exempt preparations, sold for medical purposes, without prescriptions.
Field studies of morbidity and mortality with a view to forecasting tentatively the amount and character of sickness to be expected.
An educational program through physicians and their clientele, toward reducing the demand for narcotic drugs in illness.

It was announced that the Surgeon General would later on hold another conference on ways of carrying out the program.

That those present appreciated the responsibility resting upon them in connection with the legitimate use and further control of narcotics was evident and the fullest coöperation was pledged. The opinion was general that the objectives could not be reached by one effort but that the program must be a continuing one. It was clear that the method of approach employed by the Surgeon General had brought about better contacts and closer coöperation than has ever existed between the civil and government agencies dealing with legitimate narcotics.

A FATAL ERROR IN DISPENSING.*

The following editorials from outstanding Kansas newspapers give their reaction to the conditions referred to:

(From *El Dorado Times*, R. A. CLYMER, Editor.)

"THE ARMY NEEDS GRADUATE PHARMACISTS."

"A court-martial in which the entire public should be interested is now in progress at Fort Leavenworth. Corp. Ralph E. Hawkins is charged with a violation of the ninety-third

* See page 808, article by Chairman Robert L. Swain, of Committee on Pharmacy Corps, U. S. Army.

article of war, and testimony has tended to disclose that the accused man displayed gross negligence in compounding a prescription for two children who afterwards died from its effects. The children were those of enlisted men and each was afflicted with measles. Lieut. Jonathan Rigdon, a medical officer at the fort, prescribed for them.

"Col. Percy L. Jones testified on Tuesday, according to newspaper reports, that the accused man indicted, following the deaths of the children, that he had used atropine sulphate in powder form in compounding the prescription, rather than in tablet form. The damaging testimony of Colonel Jones was substantiated by that of Technical Sergeant Frank E. Baier who testified the accused man admitted to him that while he knew the drug was poisonous, he was not aware it was so dangerous as to make a difference, whether it was put up for dosage in tablet or powder form.

"Lieutenant Rigdon also is to be tried in connection with the case. His trial, originally set for July 28th, may be set over as a result of the unexpected length of the proceedings under which Hawkins is being tried. The charge against the officer is one of neglect of duty, because of his failure to respond to the call of the mother of one of the children after the drug was beginning to show its effects. The charge is not in connection with writing an improper prescription, since testimony brought out at the Hawkins trial has disclosed the prescription was correct and that its contents, properly compounded, probably would have aided the children.

"And so we have what appears to be, on the face of it, a glaring defect in the handling of medicines in the United States army medical service. The *Times* is informed that the medical corps does not think it necessary to have medicines dispensed by pharmacists. Under present practice, any available enlisted man, regardless of his qualifications, may be put to work compounding and dispensing prescriptions for the enlisted personnel and their families. In this case, it appears according to testimony, that an unqualified non-commissioned officer was detailed to do this important work and that his ignorance caused the death of two innocent infants. The medical officer ordered some tablets which contained a minute quantity of atropine sulphate. Not having the tablets, the unqualified dispenser probably tried to weigh out this potent drug, it being impossible to weigh such small quantity unless mixed with some inert ingredient like milk sugar. In the doses for the children, therefore, the amount of atropine sulphate was doubtless many times larger than required, and so death resulted.

"This incident happened in peace times. It is rather disagreeable to think of the mistakes that may have happened from the same cause during war time, when haste in dispensing medicine was necessary.

"There is at present a bill before Congress to establish a pharmacy corps and which would require all medicines to be dispensed by a graduate pharmacist. The surgeon general of the United States is reported to oppose this innovation for the simple reason that he does not want his authority divided. If this be the case, it is a poor peg upon which to hang his opposition. Surely the lives of soldiers and of their dependents is entitled to be safeguarded against ignorance and inexperience. The army certainly needs the services of pharmacists who know their business as well as citizens in more peaceful occupation."

(From *Journal-World*, Lawrence, Kansas.)

"A NEEDED ARMY CHANGE."

"The outcome of the investigation into the deaths of two children of soldiers at Fort Leavenworth may be the improvement of the army medical service. The children's deaths were traceable directly to the lack of graduate pharmacists in the army medical organization. A member of the medical department made an error in compounding prescriptions which a graduate pharmacist would not have made, with fatal results in two families. A court martial has established that as the salient fact in the case, but has not yet determined what punishment shall be imposed upon the man for his ignorant mistake.

"Jonathan Rigdon, a Lawrence boy and graduate of the University of Kansas school of medicine, who wrote the prescription, was cleared of culpability in connection with the case. The prescription was properly written but wrongly filled.

"A bill before the last session of Congress was aimed to correct the defect in the medical organization shown in the Leavenworth case. Dean Havenhill of the University school of

pharmacy has been endeavering for a long time to have the services of graduate pharmacists used in the army. The innovation hitherto has been opposed, but the Leavenworth case may be an effective factor in bringing about the needed change."

The following articles appeared in the *El Dorado Times:*

"TAKE TESTIMONY IN TRIAL OF POST MEDICAL OFFICER."

"Corp. Ralph E. Hawkins Being Tried by Court Martial in Death of Children Last April."

"The court martial proceedings against Corporal Ralph E. Hawkins, medical corps, got under way this morning at 8 o'clock at military police headquarters and continued until 12.15 o'clock this afternoon when it adjourned for the day. Corporal Hawkins is being tried in connection with the sudden deaths of William Cornett and Frank Canki, which occurred April 26th, following a brief illness.

"Among the witnesses called to testify at this morning's session were, Sgt. and Mrs. Rudolph Canki, parents of Frank Canki; Mrs. Gladys Cornett, mother of William Cornett; Lieut. Jonathan M. Rigdon; Major George D. Chunn and Major George A. O'Connell.

"Sgt. and Mrs. Canki testified regarding the brief illness of their son and told of him dying while on the way to the station hospital, shortly after he had been given medicine from a prescription written by Lieutenant Rigdon and filled by Corporal Hawkins.

"The prescription was introduced in the testimony and Major Chunn and Major O'Connel both of the medical corps, said in their opinion the prescription would not have caused the deaths if it had been filled out as written and given according to the directions.

"Capt. Frederick H. Black, field artillery, is acting trial judge advocate and is prosecuting the case. The charge comes under the 93rd article of war and corresponds to a manslaughter charge in civil courts.

"Lt. Col. G. B. Strong has been engaged as special counsel for the defense. The trial will be resumed tomorrow morning at 7.30 o'clock and it is expected all the testimony will be in before adjournment.

"A special court stenographer is taking down all the testimony which after the trial will be written up and given to the court-martial board for aid in reaching their verdict. It is said probably several days will elapse before the decision of the board is known."

"SOME DAMAGING TESTIMONY IN HAWKINS TRIAL."

"Medical Officer Testifies Corporal Who Compounded Medicine Didn't Use the Correct Weights.

"Court-martial proceedings against Corporal Ralph E. Hawkins, medical corps, Fort Leavenworth, charged with manslaughter in connection with the deaths of William Cornett and Frank Canki, began yesterday were resumed this morning in military police headquarters at 7.30 o'clock and continued until 12.30 o'clock this afternoon when it adjourned for the day.

"Yesterday Capt. Frederick H. Black, trial judge advocate introduced evidence which tended to show the prescription written by Lieut. Jonathan H. Rigdon, medical corps, would not have proved fatal had it been filled as written.

"Additional witnesses introduced to-day were put on by the prosecuting side and were: Maj. Guy L. Qualls, medical corps; Maj. Daniel H. Torrey, adjutant; Maj. Martin R. Reiber, medical corps, and Col. Percy L. Jones, medical corps; Tech. Sgt. Frank E. Baier, medical corps.

"Maj. Qualls testified that it was his opinion the prescription was properly written and that the medication prescribed would not have caused the deaths had the prescription been filled properly.

"Major Torrey introduced documentary evidence assembled on the case. Major Reiber, who performed the autopsy on the two children, said death resulted because of congested lungs in both instances and could not have been caused by meningitis.

"Colonel Jones said the prescription had it been filled as written should not have caused the deaths. Colonel Jones also brought out that inasmuch as Corporal Hawkins had asked for promotion and was being considered for such, he was thought qualified to act as a pharmacy clerk. He also said the accused when questioned immediately following the deaths, said he had used the atrophine sulphate in filling the prescription in powdered form instead of in capsule form, and that due to the difficulty of getting measurements accurately in powdered form, it was possible

one of the compounds used in making up the medicine had been used in excessive quantities.

"Corporal Hawkins had been on duty as a relief pharmacist for three years, according to Colonel Jones, and was qualified for the place.

"Sergeant Baier testified Corporal Hawkins admitted to him under questioning that he thought the medicine was poison at the time he was putting it up but had not believed the reaction would be so drastic.

"Sergeant Baier also said the accused had admitted he used the powdered form, weighing it on chemists scales, instead of using the capsule form.

"No testimony for the defense has as yet been introduced by Col. C. B. Strong, counsel for Corporal Hawkins. The trial will be resumed tomorrow morning at 7.30 o'clock and it is not expected it will be over for two or three days yet.

"Authorities at the fort expect the court-martial proceedings against Lieutenant Rigdon to start next Monday morning, July 28. Lieutenant Rigdon is understood to be under a charge of neglect of duty in connection with the case."

The following are Associated Press reports:

"MEDICAL OFFICER TO TRIAL AT LEAVENWORTH."

"Leavenworth, Kans. July 25th (A.P.).—A military court convened at Fort Leavenworth to-day to hear the case of Lieutenant Jonathan M. Rigdon, charged with neglect in the death of two boys, children of enlisted men at the post.

"The two boys, William Cornett and Frank Canki, died April 26 after taking medicine prescribed by Lieut. Rigdon, who was a member of the medical corps. The charge is based on the officer's alleged failure to respond to a call when the children were seized with convulsions after the medicine had been administered.

"The trial of Corp. Ralph E. Hawkins, charged with negligence in compounding the prescription given him by Lieutenant Rigdon, was continued late yesterday because of the absence of Private Virgil Phipps, guard and service company, who acted as court reporter. Phipps' notes were available to the board but could not be transcribed accurately by other short hand reporters.

"Private Phipps last was seen here Wednesday night and since then has not reported for duty. According to authorities at the fort, a soldier absent without leave from duty is not dropped from the rolls as a deserter until he is gone ten days.

"A court reporter from Kansas City was taking testimony in the trial of Lieutenant Rigdon.

"The court martial convened at 8 o'clock this morning and continued in session this afternoon. Four witnesses were put on the stand by Capt. Frederic H. Black, trial judge advocate, at the morning session.

"Mrs. William Cornett, mother of William Cornett, testified regarding a telephone conversation with Lieutenant Rigdon after she noticed her son's condition was becoming worse.

"She testified Lieutenant Rigdon advised her to increase dosage of medicine from five drops to eight drops and that the only time he had come to see the child was when he wrote the prescription.

"The medicine prescribed was atropine sulphate, and was put up by Corporal Hawkins in powdered form instead of in capsule form as the prescription called for, according to testimony introduced during the first days of his trial.

"Mrs. Cornett testified she had not told the medical officer in a telephone conversation that the child was suffering convulsions.

"Sergeant Cornett, next on the stand, said he was in the room with his wife while she talked to Rigdon. Cornett testified his wife told Lieutenant Rigdon the child was in convulsions. He also stated Rigdon did not come to their house after the call.

"Col. Percy Jones, medical corps, testified officers in charge of patients outside of the station hospital were Col. W. E. Cooper and Lieutenant Rigdon, and that it was customary for each officer to continue with a case until its conclusion.

"Lt. Col. G. B. Strong and Capt. Parry Taylor are acting as defense counsel in this trial also. Lieutenant Rigdon was not put on the stand this morning. The trial is expected to continue through tomorrow morning at least."

"RIGDON ACQUITTED."

"Medical Officer Is Freed of Neglect Charges in Death of Two Youths. Is Son of Lawrence Man."

"Leavenworth, Kan., July 26th. (A.P.).—A military court sitting at Fort Leavenworth, late yesterday acquitted Lieut. Jonathan M. Rigdon, medical corps, of neglect charges in the death April 26th of William Cornett and Frank Canki, sons of enlisted men at the post.

"The medical officer was charged with failure to respond to calls from the boys' parents after they became violently ill from medicine administered to them for the measles. The prescription for the medicine was written by Lieutenant Rigdon and presented to Corp. Ralph Hawkins who is accused of negligence in filling it. His trial is expected to be completed next week.

"The court found that the officer had written the prescription correctly. Mrs. William Cornett, mother of one of the boys, testified she had not mentioned in her telephone conversation with the physician that her son had convulsions.

"Lieut. Rigdon, a graduate of the University of Kansas medical school, received his commission only ten days before the boys died. Before entering the army he practiced medicine at Effingham, Kans.

"Lieutenant Rigdon is the son of Walter Rigdon of Lawrence, a candidate for the Republican nomination for congress in this district."

"SOLDIER DRUG CLERK FREED IN DEATHS OF TWO CHILDREN."

"Was Tried by Fort Leavenworth Court-Martial for Improperly Compounding Prescription."

"Leavenworth, Kans., Aug. 8 (A.P.).—Corporal Ralph E. Hawkins, prescription clerk at the base hospital, Fort Leavenworth, to-day was acquitted by a court-martial which tried him on a charge of contributing to the deaths of two children of enlisted men by improperly compounding a prescription.

"Hawkins was assigned to filling prescriptions, although not a registered pharmacist. Upon his acquittal he was restored to duty at the hospital."

The *Kansas Pharmaceutical News*, edited by Secretary Roy C. Reese of the Kansas Association, comments editorially:

"LACK OF PHARMACY IN THE ARMY CAUSES DEATHS."

"A very sad case has come to our notice the past week, at Fort Leavenworth.

"In April, two officers' children were afflicted with measles, Lieut. Rigdon, who graduated from the K. U. School of Medicine, and who has practiced medicine in Effingham, was called, and prescribed a dose of Atropine Sulphate 1-200 grain, to be given in Hypodermic tablet form. The hospital corps does not include a registered or graduate pharmacist, the prescriptions were given to a corporal in the corps to fill. The corporal is not a druggist or pharmacist in any sense of the word. He did not know that H. T. meant Hypo-tabs. The metric system being used, the prescription read, H. T. Atropine Sul. 0.0003.

"Again, the corporal was lost. He used scales and weighed out some powdered Atropine Sul. The medicine was given to the small boys, aged 2 and 4 years. In about $1^1/_2$ hours both were dead, death caused by suffocation or paralysis of the lungs.

"During the court-martial of the corporal the testimony of an army doctor brought out more clearly the indifferent attitude taken by some members of the medical staff, and the careless system by which incompetent men and men absolutely ignorant of the action and power of drugs are allowed to fill prescriptions, and dispense drugs promiscuously. One doctor, in testifying, stated that he had examined the corporal on trial, at three different times, for promotion. That the corporal had passed a satisfactory examination, as to his fitness for promotion in military knowledge, physical condition, and various other subjects including pharmacy and materia medica.

"Then, after first stating that the corporal on trial had passed the examinations satisfactorily, he was asked if, in his opinion, the corporal was competent to act as a pharmacist. He answered, 'I don't know.' Somewhat of a paradox. This brings out clearly the need of an established and competent pharmacy corps in the army, composed of registered or graduate pharmacists, who have passed an examination in pharmacy, and its various branches, before an examining

board of known ability, and responsibility, such as our state examining boards, and our pharmacy school faculties.

"This case must be taken up by all state association officials, national association officials, and by the pharmacy schools throughout the country, it must be brought forcibly to the attention of our congressmen, senators, and the higher officials in the army.

"This case puts it entirely up to the commanding officers of the army medical corps. A soldier or a soldier's family has just as much right to protection against poisons, and potent drugs, as any citizen in the country."

It is reported that the prescription called for:

℞

H T

Atropine sulphate .0003

Sig.: Dissolve in 4 cc. water and give 5 drops.

INTERNATIONAL PHARMACEUTICAL FEDERATION, JULY 16TH–19TH.

We are indebted to Secretary-General Hofman for a report of the recent general meeting of the International Pharmaceutical Federation. The meeting in Stockholm gave the delegates who were present a delightful opportunity for visiting the apothecary shops of Sweden. These are very interesting places and those who had the opportunity of being present will long remember their visit.

There were delegates present from eighteen different countries. The opening meeting was held in the home of the apothecary society, and opened by President L. van Itallie, who reminded the Federation that Carl Wilhelm Scheele was a Swedish pharmacist, and among others well known for their work in pharmacy, chemistry and botany he mentioned Berzelius, Arrhenius and Linnaeus. He also referred to the late Edmund White and to Van Ledden Hulsebosh as founders of the Federation.

Dr. Hofman presented his secretarial and financial report. Changes in the status, changing the representation of delegates and designating three delegates for 5000 members of the Association represented.

President van Itallie asked to be relieved of the office of President. His declination was accepted and he was elected Honorary President on motion of Mr. Barthet, which was carried unanimously. Dr. J. J. Hofman, the General-Secretary, was nominated for President, and it was decided to leave the election of the new General-Secretary to the Board.

The members of the Board are Saville Peck, Cambridge; Herman Thoms, Berlin; Mr. Barthet, Paris; Dr. Höst Madsen, Copenhagen; O. von Koritsansky, Budapest; and Dr. Schamelhout, Brussels.

The Pharmaceutical Society of Japan, with 2000 members was elected to membership in the Federation, and as associate members there were accepted thirty-four pharmacists of Sweden, eighteen of Norway, two of Denmark, four of Finland and two of Holland.

The first subject under discussion was the report of the Committee on Medicine in Ships, by Messrs. Linstead, van Itallie and Vavasseur.

The Committee decided to accept the following:

1. That the supply of medicines and surgical appliances in ships should be supervised by pharmacists preferably those who would visit the ships personally.

2. That every ship should carry a list of the medicines and appliances which it is required to have on board according to the regulations of the respective countries. (Variations permitted should be indicated on the list.)

3. That no ship except those making short voyages, should be permitted to leave port until the Captain is in possession of a certificate signed by a doctor or pharmacist; that the stocks of medicines and appliances prescribed on the list are complete.

4. That the Federation might usefully publish an international Formulary for medicines used on ships. The report contained the replies of eleven countries relating to the control and

inspection of ships. Dr. Schamelhout prefers that the certificates of control shall be delivered by all pharmacists on condition that it will not be the pharmacist who has supplied the medicines. Mr. Mandowsky proposed to make a Central Institute for Information that will obtain all necessary information relative to the subject. He prefers closets for stoppered bottles rather than old chests which are still being used. He also suggested a collection of records of prescriptions of different countries.

The next report was that of the Committee on International Nomenclature of Products, the names of which are trade-marks.

The proposal by Dr. Zwikker that it will be useful to have in the Pharmacopœia short names for chemical products which are on the market under protected names, was accepted. It was also suggested that it would be useful to accept the same names which are already in use in the United States, British and other pharmacopœias and it would be preferable if the right to a name would not constitute a lasting monopoly for a product.

The next report was that of the Committee of Inquiry on the Influence of Industries on Pharmacy, and was made by Dr. Hofman and Dr. Schamelhout. Their conclusions were:

1. That the law must have as principle that medicine should only be prepared and dispensed by pharmacists and that pharmacists must be responsible for the medicines they dispense.
2. The government must make regulations relative to the education and examination of pharmacists and relative to the installment of pharmacies.
3. Associations should be duly and practically conducted.
4. The government must await the supervision of manufacturing and sale of patented pharmaceutical preparations and must require of the manufacturer to put the prescription on the labels of bottles.
5. Dispensing of medicines on ships and in public and private sanitoriums and other institutions placed under the control of qualified pharmacists.
6. Pharmaceutical organizations are asked to undertake control of patent medicines and study the question as to whether the pharmacist or the manufacturers of the patents should be responsible for these products. This subject was discussed by Dr. Thoms and other delegates. The joint opinion was that the manufacturers are responsible to the pharmacists and the manufacturers are responsible to the public.

Question number 6 of the Agenda, that the pharmaceutical organizations supervise pharmaceutical patents is discussed in the report of Dr. Rising on "The Control of Pharmaceutical Patents in Sweden" and in international coöperation. The Board of the Federation has given thought to this question and proposes to nominate an international Committee of seven members and to give the annual financial support to this Committee. The Committee can collect the methods for examination and make researches in different countries and publish these methods in the *Bulletin* of the Federation. The Board proposes as members of this Committee Prof. Thoms of Berlin, Dr. Rising of Stockholm and Baggesgaard and Rasmussen, Kopenhagen, Dr. Schamelhout of Brussels, Prof. Herissey of Paris, Dr. Weiss of Vienna, Prof. van Itallie, Leyden. For the next year 1000 guilders (about $400) were voted to this Committee.

The Pharmaceutical Society of Greece asked for information relative to the conditions for the supplying of medicines under Social Insurance in different countries. This proposal is published in the *Bulletin* of the Federation. Mr. Lang, of Switzerland, called attention to an international sign for pharmacies.

The meeting of the International Federation will be held at Prague in 1932. Dr. Heger also invited the Federation to come to Vienna but this was not accepted because of a previous invitation of the delegate of Czechoslovakia to the Federation at the meetings of Lausanne and Paris.

The officers of the Federation are: *President*, J. J. Hofman, Holland; *Vice-Presidents*, M. Barthet, France; H. Thoms, Germany; E. Saville Peck, Great Britain; O. von Koritsanzky, Hungary; E. Höst Madsen, Denmark. The secretaries are to be elected.

The Fifth International Botanical Congress met in Cambridge (England), August 16th to 23rd. Prof. A. C. Seward, of the University of Cambridge, presided over the meeting.

ASSOCIATION BUSINESS

THE COUNCIL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, 1930–1931.

Office of the Secretary, 10 West Chase St., Baltimore, Md.

LETTER NO. 1.

May 16, 1930.

To the Members of the Council:

The reorganization and first meeting of the Council 1930–1931 was held in the Hotel Emerson, Baltimore, Md., on Friday, May 9, 1930, beginning at 10:45 P.M.

No. 1.—The roll was called and the following were present: Arny, Bradley, Day, Christensen, Hilton, Dunning, Beal, Caspari, LaWall, Adams, Johnson, Kelly, Holton, Eberle, DuMez and Jordan.

No. 2.—Election of Chairman. S. L. Hilton was elected Chairman of the Council for 1930–1931 on motion of LaWall, seconded by Arny and carried.

No. 3.—Election of Vice-Chairman. C. H. LaWall was elected Vice-Chairman of the Council for 1930–1931 on motion of Bradley, seconded by Caspari and carried.

No. 4.—Election Editor of the Journal. E. G. Eberle was elected Editor of the JOURNAL for 1930–1931 on motion of Dunning, seconded by Johnson and carried.

No. 5.—Election Editor of the Year Book. A. G. DuMez was elected Editor of the YEAR BOOK for 1930–1931 on motion of Arny, seconded by Adams and carried.

No. 6.—Membership of the Council. The membership and officers of the Council for 1930–1931 are as follows:

ELECTED MEMBERS.

H. C. Christensen, 130 N. Wells St., Chicago, Ill. (Term expires 1931.)
H. A. B. Dunning, Charles & Chase Sts., Baltimore, Md. (Term expires 1931.)
S. L. Hilton, 1033 Twenty-Second St., N. W., Washington, D. C. (Term expires 1931.)
J. H. Beal, Camp Walton, Fla. (Term expires 1932.)
C. E. Caspari, Euclid & Parkview Aves., St. Louis, Mo. (Term expires 1932.)
C. H. LaWall, 636 S. Franklin Square, Philadelphia, Pa. (Term expires 1932.)
H. V. Arny, 115 W. 68th St., New York, N. Y. (Term expires 1933.)
T. J. Bradley, 179 Longwood Ave., Boston, Mass. (Term expires 1933.)
W. B. Day, 701 S. Wood St., Chicago, Ill. (Term expires 1933.)

EX-OFFICIO MEMBERS.

Walter D. Adams, Forney, Texas.
D. B. R. Johnson, 1006 Classen Blvd., Norman, Okla.
E. F. Kelly, 10 W. Chase St., Baltimore, Md.
C. W. Holton, Box 81, Essex Fells, N. J.
Chas. B. Jordan, 407 Russell St., Lafayette, Ind.
E. G. Eberle, 10 W. Chase St., Baltimore, Md.
A. G. DuMez, Lombard & Greene Sts., Baltimore, Md.

OFFICERS OF THE COUNCIL.

S. L. Hilton, *Chairman.*
C. H. LaWall, *Vice-Chairman.*
E. F. Kelly, *Secretary.*

No. 7.—Finance Committee. Chairman Hilton appointed T. J. Bradley, *Chairman*, C. H. LaWall and C. W. Holton as members of the Committee on Finance and these appointments are confirmed on motion of Eberle, seconded by Dunning and carried.

No. 8.—Committee on Property and Funds. The personnel of this Committee, as provided for in the Council By-Laws, is as follows for 1930–1931: H. C. Christensen, C. W. Holton, S. L. Hilton, T. J. Bradley and E. F. Kelly.

No. 9.—Committee on Publications. Chairman Hilton appointed H. V. Arny, C. H. LaWall and H. C. Christensen as members of the Committee, the other members being E. G. Eberle, E. F. Kelly, A. G. DuMez and C. W. Holton as provided in the By-Laws.

These appointments were confirmed on motion of Beal seconded by LaWall. Chairman Hilton appointed A. G. DuMez as *Chairman* of the Committee on Publications.

No. 10.—Committee on Standard Program. The Chairman appointed S. L. Hilton, T. J. Bradley and E. F. Kelly, as members of the Committee on Standard Program.

No. 11.—Executive Committee of the Council. It was moved by Beal that the Chairman be authorized in case the occasion should arise, to appoint an Executive Committee consisting of seven members. The motion was seconded by Arny and carried.

No. 12.—Committee on Pharmaceutical Research. On motion of Arny, seconded by Caspari and carried, W. L. Scoville and J. C. Krantz, Jr., were elected members of this Committee to serve until 1935.

No. 13.—Commission on Proprietary Medicines. J. H. Beal was elected a member of this Commission to serve until 1935, on motion of Caspari, seconded by Johnson and carried.

No. 14.—Committee on Unofficial Standards. On motion of Arny, seconded by Caspari and carried, E. S. Rose, H. H. Rusby, E. V. Lynn and Arno Viehoever were elected members of the committee for a term of four years and J. C. Krantz, Jr., was elected Chairman of the Committee to succeed E. N. Gathercoal, resigned.

No. 15.—Appointment of Standing and Special Committees and Delegates of the Association. The President was authorized, on motion of Bradley seconded by Dunning and carried, to make such appointments, as are now authorized, to fill vacancies as they may occur and to make additional appointments as may be necessary or advisable, during the year.

No. 16.—Program of the Annual Meeting. After a general discussion of the program it was moved by Beal that the annual reports of the Secretary, the Treasurer, the Editor of the JOURNAL and the Editor of the YEAR BOOK be presented to the House of Delegates, leaving the President free to present general observations on the activities of these officers in his annual address before the General Session. The motion was seconded by Arny and carried.

No. 17.—Sections of the Association. It was moved by Beal that at an appropriate time prior to the annual meeting, the Secretary advise the officers of the sections of the suggestions submitted by members of the Council for the improvement of their programs, and invite them to attend a meeting of the Council to be held on the first day of the annual meeting for the purpose of consulting about the programs. The motion was seconded by Caspari and carried.

The meeting then adjourned.

E. F. KELLY, *Secretary.*

LETTER NO. 2.

August 4, 1930.

To the Members of the Council:

(Motion No. 1) It is moved by Eberle that the minutes of the first meeting of the Council 1930–1931, presented in Council Letter No. 1, be approved.

No. 18.—Western New York Branch, A. Ph. A. There is submitted below an application signed by twenty members of the ASSOCIATION for the formation of the Western New York Branch of the A. PH. A.

"We, the undersigned members of the AMERICAN PHARMACEUTICAL ASSOCIATION, wish to organize ourselves into a local branch, to be known as the Western New York Branch, and do hereby make application to the council for recognition as such a body. The Constitution and By-Laws are submitted for approval.

A. Milinowski	Lewis G. Freeman
Charles H. Gauger	Wilfred J. Bedworth
W. L. Seibert	Richard P. Morgan
Lawrence D. Lockie	W. J. Irons
A. B. Lemon	H. G. Hewitt
James J. Whitehead	Geo. W. Fiero
Michael Strozzi	Geo. F. Bigham
Margaret C. Swisher	Leon M. Monell

Willis G. Gregory
Marvin B. Carrel
Albert L. Hock, Jr.
James A. Donovan

Those interested in this Branch have held two meetings, one on February 20th and the other on March 27th, and have completed their organization by the election of the following officers:

President, Lewis G. Freeman.
First Vice-President, James A. Donovan.
Second Vice-President, B. A. Heath.
Secretary, Laurence D. Lockie.
Treasurer, W. L. Seibert.

The minutes of these meetings will appear in the JOURNAL OF THE A. PH. A.
The Constitution and By-Laws, as submitted, are as follows:

PREAMBLE AND BY-LAWS OF THE WESTERN NEW YORK BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION.

In order to stimulate a better acquaintance of members for the exchange of ideas and for the betterment of Pharmacy in Western New York;

Therefore, we, the undersigned members of the AMERICAN PHARMACEUTICAL ASSOCIATION, do hereby resolve to constitute ourselves into a local branch, for the purpose of advancing the objects for which the body was founded.

The name of this body shall be 'The Western New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION.'

The Branch hereby adopts for its guidance the Constitution and By-Laws of the AMERICAN PHARMACEUTICAL ASSOCIATION and its members hereby subscribe to them.

BY-LAWS.

1. *Members.*—This Branch shall consist of active and associate members.

2. *Active Members.*—All members of the AMERICAN PHARMACEUTICAL ASSOCIATION residing in Western New York may, on signifying their intention of adhering strictly to the provisions enumerated in the preamble and in the Constitution of the AMERICAN PHARMACEUTICAL ASSOCIATION, be elected to active membership of this Branch.

3. *Associate Members.*—Any person who is not an active member, but who manifests his interests either by contribution or active participation of work or research, scientific papers, or add to its financial resources shall be termed an associate member but without the right to vote.

4. *Officers.*—The officers of the Branch shall be a president, two vice-presidents, secretary and treasurer, and delegate to the house of delegates.

5. *Committees.*—At the March meeting of each fiscal year or as soon thereafter as possible, the president shall appoint four standing committees, as follows: A Committee on Practical Pharmacy, to consist of three members; a Committee on Professional Relations, to consist of three members; a Committee on Program, to consist of three members; a Committee on Membership, to consist of five members.

6. *Executive Committee.*—The officers of the Branch and chairmen of the Standing Committees shall constitute the Executive Committee, to transact all the necessary business connected with the regular meetings of the Branch.

7. *Meetings.*—The meetings of the Branch shall be held on the first Thursday of each month from October to May, inclusive.

8. *Quorum.*—Seven members shall constitute a quorum.

9. *Dues.*—Every active and associate member shall contribute annually the sum of one dollar.

10. *Fiscal Year.*—The fiscal year of the Branch shall be from the stated meeting of March of one year to the meeting of March of the following year.

11. *Elections.*—The officers shall be elected, by ballot, at the February meeting and be installed at the March meeting, and shall serve for one year or until their successors shall have been elected.

12. Presiding Officer.—In the absence of the president, the next succeeding officer shall take the chair.

13. Secretary.—The secretary shall keep fair and correct minutes of the proceedings of the meetings and send reports of the same to the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION and such journals and newspapers as he may deem proper. He shall preserve, on file, all reports and papers of every description presented to the Branch, and shall be charged with the necessary business and scientific correspondence. He shall read all papers handed to him by the president for the purpose, shall call and record ayes and nays whenever they are required to be called; shall notify the chairmen of every standing and special committee of his appointment, giving him a list of his colleagues and stating the business upon which the committee is to act. He shall notify every member at least one week in advance of the time and place of each meeting.

14. Treasurer.—The treasurer shall collect and take charge of the funds of the Branch and shall give receipts for the same. He shall pay no money except upon order of the secretary countersigned by the president and accompanied by the proper vouchers. He shall present a statement of conditions at each March meeting of the Branch. He shall receive the amount of his expenses incident to the duties of his office.

15. Order of Business.—(1) Reading of the minutes of the previous stated meeting; (2) Introduction of newly elected members; (3) Unfinished or deferred business; (4) New business; (5) Program; (6) Nominations and elections; (7) Adjournment.

16. Miscellaneous.—Every proposition to alter and amend these By-Laws shall be submitted in writing at a stated meeting of the Branch, and may be balloted for any subsequent stated meeting, when, upon receiving the votes of three-fourths of the members present, it shall become a part of the By-Laws.

17. Rules of Order.—On all points not specifically mentioned in the By-Laws governing this section, the By-Laws of the AMERICAN PHARMACEUTICAL ASSOCIATION shall take precedence over the other decisions on parliamentary rule."

(*Motion No. 2*) *It is moved by Kelly that the application for the formation of the Western New York Branch and the Constitution and By-Laws of the Branch be approved.* If any member wishes to discuss this motion, the vote will be considered as tentative.

No. 19.—Applicants for Membership. The following applications properly endorsed and accompanied by the first year's dues have been received:

No. 1, Florenz A. Abrams, College of Pharmacy, Howard University, Washington, D. C.; No. 2, Harold B. Bender, 150 York St., New Haven, Conn.; No. 3, Harris James Benedict, 431 Buchanan St., Ann Arbor, Mich.; No. 4, John George Bile, 341 Herkimer St., Brooklyn, N. Y.; No. 5, Bernard B. Brody, 4263 N. Spaulding St., Chicago, Ill.; No. 6, Jacob S. Cohen, 694 Ralph Ave., Brooklyn, N. Y.; No. 7, Anthony L. Armentano, 3558—71st St., Jackson Heights, N. Y.; No. 8, Elmer E. Asher, Albia, Iowa; No. 9, C. M. Baker, Librarian, Univ. of Kansas, Lawrence, Kans.; No. 10, Nathan Becker, 78 Moreland St., Roxbury, Mass.; No. 11, George Blackall, 177 Main St., Bristol, Conn.; No. 12, Abraham R. Brownstein, 188 Washington Ave., New Haven, Conn.; No. 13, H. H. Cline, 716–717 United Life Bldg., Salina, Kans.; No. 14, Peter E. Daddona, 36 Stillwater Ave., Stamford, Conn.; No. 15, Raymond A. Dahill, Tashiman Ave., Vineyard Haven, Mass.; No. 16, Tozia Jean Dropiewski, 22 W. Green St., Nanticoke, Pa.; No. 17, Tom Fairfull, Penn, Pa.; No. 18, Herbert Bernard Falk, 709 East 24th St., Paterson, N. J.; No. 19, Thomas R. Farrell, 101 West 31st St., New York, N. Y.; No. 20, Sol Feigelson, 1922 Jackson St., Houston, Texas; No. 21, Alius Feves, 275 First St., Portland, Ore.; No. 22, Victor B. Frank, 402 Elm St., Stamford, Conn.; No. 23, Georgia O. George, 675 So. Clarence St., Los Angeles, Calif.; No. 24, Lona B. Grisell, Johnson, Kans.; No. 25, Carroll B. Gustafson, 155 George St., Arlington Heights, Mass.; No. 26, H. B. Haag, Medical College of Va., Richmond, Va.; No. 27, Grace I. Harper, 14 Hollywood Ave., East Orange, N. J.; No. 28, Roy Hawk, 240 S. Lorraine St., Wichita, Kans.; No. 29, Orville D. Hoxie, 1415 Plainfield Ave., Grand Rapids, Mich.; No. 30, Wm. A. Jarrett, 183 No. Jackson St., Bellevue, Pa.; No. 31, Thomas B. Kirby, 724 McKean Ave., Charleroi, Pa.; No. 32, Edward Owen Klein, 713 St. Genevieve St., Farmington, Mo.; No. 33, Walter Andrew Kramarczyk, 4318 W. Walton St., Chicago, Ill.; No. 34, Wiley McFadin, P. O. Box 65, Fairfield, Texas; No. 35, Clyde L. McLean, Goose Creek, Texas; No. 36, John Stafford Mitchell, 243 Florida Ave., N. W., Washington, D. C.; No. 37, George

G. Nagle, 27 Craighead St., Pittsburgh, Pa.; No. 38, Walter E. Patneaude, 2627—63rd St., Kenosha, Wis.; No. 39, Robert M. Porter, 822 Helmsdale Rd., Cleveland, Ohio; No. 40, George L. Rapport, 30 Sherman St., Hartford, Conn.; No. 41, Henry G. Reuwer, 7 So. Market Square, Harrisburg, Pa.; No. 42, Philip W. Schmitt, 4346 N. Hermitage Ave., Chicago, Ill.; No. 43, Wolfgang Schnellbach, 225 Jagnes Ave., Rahway, N. J.; No. 44, Abraham Maurice Shankman, 1171 Dwight St., Springfield, Mass.; No. 45, Sister Mary Oswalda Flaherty, Marywood College, Scranton, Pa.; No. 46, J. A. Slover, Grants Pass, Oregon; No. 47, Joseph J. Sparr, 4 Park Vale Ave., Allston, Mass.; No. 48, T. M. Spieldoch, 609 N. Grand Ave., St. Louis, Mo.; No. 49, Arthur W. Stockton, 1027 Argentine Blvd., Kansas City, Kans.; No. 50, G. Richard Tadgell, 110 Porter St., Somerville, Mass.; No. 51, Aldona A. Trainovich, 59 Wexford St., Brighton, Mass.; No. 52, Richard Berling Wheelock, 1619—17th St., Moline, Ill.; No. 53, John F. Vardy, Mertzon, Texas; No. 54, Irwin Volkin, 1808 Beaver Ave., Pittsburgh, Pa.; No. 55, Albert Yuel, Blue Mound, Kans.; No. 56, B. T. Woodward, 119—5th Ave., New York, N. Y.

(*Motion No. 3*) *Vote on applications for active membership in the American Pharmaceutical Association.*

No. 20.—Applicants for Membership on Account of Contributions to the Headquarters Building Fund. The following non-members of the A. PH. A. have pledged $25.00 or more to the Headquarters Building Fund and have made a cash payment of $5.00 or more. They are entitled to membership and you are requested to vote on the applications which have been properly endorsed.

H-1, L. B. Butler, 67 Summer St., Malden, Mass.; H-2, Chas. Davis Blanford, 2113 Hale Ave., Louisville, Ky.; H-3, Vito David Cappetta, 3602 Holland Ave., New York, N. Y.; H-4, Earl Edwin Eck, 501 N. 6th St., Sandpoint, Idaho; H-5, Nina Emogene Fish, Peru, Kans.; H-6, George Herbert Fitz, Bancroft, Idaho; H-7, A. M. Fulford, 21 & 23 S. Main St., Bel Air, Md.; H-8, George Yoshiaki Hisatomi, 1359 Pine St., San Francisco, Cal.; H-9, Julius Mirsky, 456 Alabama Ave., Brooklyn, N. Y.; H-10, Vincent Albert Musetto, 2210 Starling Ave., New York, N. Y.; H-11, Thomas B. Nash, Princeton, Ind.; H-12, Earl Franklin Payne, c/o College Pharmacy, Lynchburg, Va.; H-13, Stephen Skasko, 66 Gordon St., Yonkers, N. Y.; H-14, Howard P. Shattuck, Maine St., Northboro, Mass.; H-15, James F. Wilson, 109 East Broadway, Mayfield, Ky.

(*Motion No. 4*) *Vote on applications of contributors to the Headquarters Building Fund for membership in the American Pharmaceutical Association.*

No. 21.—Dr. J. Leon Lascoff Annually Offers as a Prize in the College of Pharmacy, Columbia University, a Life Membership in the American Pharmaceutical Association. This year the prize has been won by Gustave Bardfeld and Dr. Lascoff has forwarded his check for $100.00.

L. M.—1, Gustave Bardfeld, 9720 Jamaica Ave., Woodhaven, L. I., N. Y.

(*Motion No. 5*) *Vote on application for life membership in the American Pharmaceutical Association.*

No. 22.—Life Membership. Mr. Charles E. Miller, Fort Wayne, Ind., has become a Life Member of the A. PH. A. through the payment of $25.00.

No. 23.—Use of the Text of the N. F. The following communication has been received from Dr. A. G. DuMez:

> "Dr. Jenkins and the undersigned respectfully request permission to use for comment in a textbook on pharmaceutical chemistry the directions given in the National Formulary for four assays. The nature of the use which we expect to make of the text is indicated by the sample pages enclosed."
>
> This request is in accord with the usual procedure.

(*Motion No. 6*) *It is moved by Kelly that A. G. DuMez and Glenn L. Jenkins be given permission to use the text of the N. F. V for partial reproduction in a textbook on pharmaceutical chemistry and at the usual charge of $5.00.*

No. 24.—Meeting of the Committee on N. F. Chairman Gathercoal submits the following short report of the meeting of this Committee held at the Westlake Hotel, Cleveland, Ohio, on June 30 and July 31, 1930, as authorized by the Council on May 8, 1930. (*See Council Letter No. 10, 1929–1930, page 61.*)

"The meeting was enjoyable because:

(*a*) The weather was pleasant and not excessively hot.

(*b*) The hotel was beautifully located, surrounded by gardens and trees on the bluff of a river, with a view of Lake Erie.

(*c*) The meeting room was cool, commodious and supplied with cool drinks.

(*d*) The sleeping rooms were large, well furnished, with fine baths and inexpensive.

(*e*) The attendance of Committee members was very good, all but two being present, as well as Associate Member Cook and Chairman J. C. Krantz of the Committee on Unofficial Standards.

The business accomplished may be summarized as follows:

(*a*) Adoption of Rules of Business Procedure.

(*b*) Completion of Committee organization.

NOTE: An Associate Sub-Committee on Dental Preparations and one on Veterinary Preparations were authorized. Auxiliary members of the Sub-Committees were authorized and several were elected.

(*c*) Sub-Committee allotments were made.

(*d*) The General Principles of Revision were thoroughly discussed and adopted with the exception of No. 1 on Scope, which is still under discussion.

(*e*) A study of the data tabulated from the survey of the extent of the use of N. F. galenicals was made and was used, to a large extent, as the basis for admission.

(*f*) The galenicals of N. F. V were carefully reviewed for admission to N. F. VI.

(*g*) Resolutions regarding N. F. Publicity were discussed and adopted.

(*h*) Resolutions on Publication of Supplements to the N. F. were discussed and adopted."

The expenses of the meeting totalled $1060.51, divided as follows: General Expenses, $62.47; Traveling Expenses, $750.05; Hotel Expenses, $247.99.

A report of the meeting by Secretary Nichols appeared in the July issue of the JOURNAL, page 673.

No. 25.—Committee on N. F. Publicity. The following resolution was presented to the Committee on N. F. at the Cleveland meeting by Chairman Gathercoal and the recommendations were approved:

"WHEREAS the National Formulary should be better known to both physicians and pharmacists and its splendid store of pharmaceutic masterpieces should be more frequently employed in medicine; and

WHEREAS the Council of the A. PH. A. has authorized a committee looking to this end, and a similar committee from the U. S. P. is also proposed; and

WHEREAS Chairman Webster of the U. S. P. and N. F. Propaganda Committee of the National Association of Retail Druggists has expressed willingness to coöperate with such committees; and

WHEREAS the work of obtaining and preparing the proper publicity material for these two official standards in medicine and pharmacy is very different in nature from the work of presenting this publicity to the desired public by the most effective methods; *Therefore*

Be It Resolved that the National Formulary Committee assembled at Cleveland, Ohio, express to the President and Council of the AMERICAN PHARMACEUTICAL ASSOCIATION its very hearty endorsement of such a committee as authorized, and accompanying this endorsement desires to present the following suggestions:

First, that the name of this proposed committee be the National Formulary Publicity Committee of the A. PH. A.

Second, that the committee consist of five members appointed by the President of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Third, that the membership of the proposed committee include the following:

1.—An outstanding and representative therapeutist.

(NOTE: The principal means of interesting physicians in medicines is from the therapeutic side. The physician is chiefly concerned in securing certain medicinal effects in the best possible way. The physician—and also the pharmacist—needs to be informed as to the splendid therapeutic results obtainable from N. F. galenicals. Contributions should be obtained from eminent therapeutists regarding N. F. galenicals and should be widely presented not only in the medical

press but also in the pharmaceutical press and directly to the physician. If a moderate honorarium were to be offered and the article be signed by the author, timely and splendid contributions from the most eminent could be had.)

2.—An outstanding pharmaceutical scientist.

(NOTE: Next to therapeutic efficiency the physician is deeply interested in the pharmaceutic elegance and palatability of the medicines he prescribes. These features of the N. F. galenicals should be emphasized. Contributions looking to the constant improvement of N. F. galenicals might best be secured by offering nominal prizes, the prize-winning articles to be published over the author's name.)

3.—An experienced retail pharmacist.

(NOTE: Pharmacists should be familiar with the N. F., should value it and respect it. The physician comes into personal contact with pharmacy through retail pharmacists. If the pharmacist is on fire for the N. F., his knowledge and enthusiasm is imparted to his physicians.)

4.—A representative hospital pharmacist.

(NOTE: In the hospitals of this country with nearly one million beds, a vast amount of medicine is dispensed. Hospital pharmacists have an insight into the pharmaceutical problems facing the physicians and have opportunity of meeting some of these problems, through N. F. galenicals. Furthermore, they are in contact with the cream of the medical profession.)

5.—A publicity expert.

(NOTE: The rank and file of busy practitioners need the information secured as indicated above to be presented tersely and with the correct psychologic appeal, which could be done by persons with special training in this direction.)

6.—The Chairman of the N. F. Revision Committee, ex-officio.

Fourth, that the proposed committee should regard as its principal function the preparation of suitable and attractive information regarding selected National Formulary galenicals or groups of galenicals and the distribution of this information to the medical and pharmaceutical press, to physicians and to pharmacists.

Fifth, that the proposed committee work in close coöperation with the similar committees of the U. S. P. and the N. A. R. D."

(*Motion No. 7*) *It is moved by Christensen that the recommendations in the Resolutions on Committee on N. F. Publicity be approved.* A vote is called for at this time but if objection or discussion is submitted, the vote will be considered as tentative.

No. 26.—Publication of Supplements to N. F. The following resolutions were submitted to the Committee on N. F. at the Cleveland meeting by Dr. Fantus and were approved:

"WHEREAS it has been charged that the contents of the National Formulary are largely out of date and that the National Formulary does not reflect medical progress; and

WHEREAS there is rapid progress in medicines and the technique of medication, so that a book on the subject, even an official formulary, soon becomes deficient in important items; and

WHEREAS it would advance the prestige and the utility of the National Formulary, if provision were made to keep it more nearly up to date than a decennial revision permits; and

WHEREAS formulas for the administration of important new remedies and the new remedies themselves in extensive use might thus secure official standardization at an earlier date than would be possible with the established policy of decennial revision, and

WHEREAS such progressive policy on the part of the National Formulary would do a great deal toward increasing its utility to the pharmacists by acquainting them with the newer materia medica and the facts they require for the intelligent storing and dispensing of these items; and

WHEREAS once physicians have become accustomed to the prescribing of proprietary preparations for the administration of the newer remedies, the habit thus acquired is not easily broken;

Therefore Be It Resolved that we recommend to the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION that the National Formulary Committee be authorized to prepare, from time to time, supplements dealing with the preparations of important newer remedies; and

Be It Resolved that these supplements be issued as occasion requires, but not oftener than once a year; and

Be It Resolved that the policies governing the preparation of these supplements be submitted in detail for the approval of the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION, in case this body declares itself favorably disposed toward such a step in the direction of progress."

Discussion is invited.

No. 27.—Appointment of Standing and Special Committees and Delegates of the Association. Attached is a reprint of the Official Roster for 1930–1931 which gives the appointments by President Christensen and Chairman Hilton.

No. 28.—Local Secretary for 1930–1931. The following communication has been received from Dr. J. H. Beal:

> "On my return from Havana I stopped over at Miami for several days to talk with the local druggists and to look over the available hotels, etc. We had a meeting of the leading members of the local association and devoted the better part of a day to discussing plans.
>
> "The local druggists favor Mr. G. H. Grommet, of the Grommet Pharmacy, Tamiami at Beacom Blvd., Miami, as Local Secretary, and I therefore nominate him for that position. Mr. Grommet is President of the Dade County Retail Druggists' Association and has made it a very successful organization. He has also just been selected as Secretary of the Florida State Pharmaceutical Association. He was formerly in Michigan and while there served as Local Secretary for the last N. A. R. D. Convention at Detroit. This experience will serve him in good stead in arranging for the A. PH. A. meeting."

Mr. G. H. Grommet is nominated as Local Secretary for 1930–1931 by J. H. Beal. If other members of the Council desire to submit nominations they are requested to do so promptly in order that a vote may be called for at an early date.

No. 29.—Time of the 1931 Meeting. The Secretary has corresponded with Dr. Beal, Mr. Grommet and others in reference to the most suitable date for the meeting in Miami, Fla. Mr. Grommet submits the following suggestion:

> "Replying to yours of the 17th, regarding the date of meeting. My delay in answering is due to the fact that I felt it advisable to discuss this matter at one of our meetings.
>
> "The committee is meeting regularly about twice a month for the present. At the meeting yesterday the concensus of opinion was that the last week of July or the week beginning July 28th would be the best adapted."

(*Motion No. 8*) *It is moved by Beal that the 1931 meeting of the Association be held the week beginning July 28, 1931.* A vote is called for at this time but will be considered as tentative if there be objection or if comments are submitted.

Dr. Beal makes the following comments:

> "There will be a full moon during that week, and the Miami people are exceedingly anxious that the members of the convention should be there to enjoy it.
>
> "There are to be several very large conventions in Miami next summer and these had to be taken into consideration in selecting the dates above suggested."

E. F. KELLY, *Secretary.*

OPERATION AND CONTROL OF CHAIN STORES BEING STUDIED BY THE FEDERAL TRADE COMMISSION.

Practically all the large chain store systems have returned schedules to the Federal Trade Commission giving information in connection with the Commission's investigation of chain store buying and selling practices. The investigation by the Commission has been authorized in resolution passed by Congress. The number of chains returning schedules to the Commission and the number of stores operated have been given by 104 drug chains listing 1554 stores. While the Commission is assembling data on chain store business they are also making a study of their activities, and during July investigations were made in Des Moines, Cincinnati and Washington.

EDITORIAL NOTES

Editor: E. G. EBERLE, 10 West Chase Street, Baltimore, Md.

Members of the Council, A. PH. A.: S. L. HILTON, *Chairman;* CHARLES H. LAWALL, *Vice-Chairman;* E. F. KELLY, *Secretary;* H. V. ARNY, A. G. DUMEZ, H. A. B. DUNNING, H. C. CHRISTENSEN, C. E. CASPARI, J. H. BEAL, W. BRUCE PHILIP, T. J. BRADLEY. *Ex-Officio Members:* H. C. CHRISTENSEN, *President;* WALTER D. ADAMS, D. B. R. JOHNSON, *Vice-Presidents;* C. W. HOLTON, *Treasurer;* E. G. EBERLE, *Editor of the Journal;* A. G. DUMEZ, *Editor of the Year Book;* C. B. JORDAN, *Chairman of the House of Delegates.*

Collaborators: The Members of the Council; E. FULLERTON COOK, *Chairman,* U. S. P. Revision Committee; E. N. GATHERCOAL, *Chairman,* N. F. Revision Committee; Chairmen of the Sections, A. PH. A.; E. E. SWANSON, B. V. CHRISTENSEN, RALPH E. TERRY, JOS. G. NOH, J. T. LLOYD; J. W. STURMER, *President,* A. A. C. P.; CHARLES B. JORDAN, *Chairman,* Executive Committee, A. A. C. P.; W. M. HANKINS, *President,* N. A. B. P.; HENRY C. CHRISTENSEN, *Secretary,* N. A. B. P.

NEW AND NONOFFICIAL REMEDIES.

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, *Secretary.*

MESUROL (See New and Nonofficial Remedies, 1930, p. 100).

The following dosage form has been accepted:

Ampules Emulsion Mesurol, 20 per cent, 1 cc.: A suspension of mesurol in sesame oil, each cubic centimeter of which contains mesurol equivalent to from 0.103 to 0.117 Gm. of bismuth (Bi).

THEOCIN (See New and Nonofficial Remedies, 1930, p. 415).

The following dosage form has been accepted:

Tablets Theocin, 1½ grains.

MERCUROCHROME-220 SOLUBLE (See New and Nonofficial Remedies, 1930, p. 271).

The following dosage forms have been accepted:

Ampules Mercurochrome-H. W. & D., 1%, 10 cc.: An aqueous 1 per cent solution of mercurochrome-220 soluble, stabilized with 0.18 per cent of ammonium hydroxide; in 10-cc. ampules.

Prepared by G. D. Searle & Co., Inc., Chicago, Ill.

Ampules Mercurochrome-H. W. & D., 1%, 20 cc.: An aqueous 1 per cent solution of mercurochrome-220 soluble, stabilized with 0.18 per cent of ammonium hydroxide; in 20-cc. ampules.

Prepared by G. D. Searle & Co., Inc., Chicago, Ill.
—*Jour. A. M. A.*, Aug. 2, 1930.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1930, p. 364).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxoid-Cutter: Also marketed in packages of one 45-cc. vial.

SYNTHETIC THYROXINE.—β[3′,5′-diiodo-4′-(3,5-diiodo-4-hydroxyphenoxy) phenyl] α-aminopropionic acid.—$HOC_6H_2I_2.OC_6H_2I_2.CH_2CH(NH_2)COOH$. A tetraiodo-derivative of *p*-hydroxyphenyl ether of tyrosine; it contains not less than 65 per cent of iodine.

Actions and Uses.—See general article, Thyroxin, New and Nonofficial Remedies, 1930, p. 403.

Dosage.—See general article, Thyroxin, New and Nonofficial Remedies, 1930, p. 404.

Manufactured by Hoffmann-LaRoche, Inc., Nutley, N. J. No U. S. patent or trademark.

Ampuls Synthetic Thyroxine-Roche, 1.1 cc.: Each cubic centimeter contains 1 mg. of synthetic thyroxine-Roche.

Solution Synthetic Thyroxine-Roche: Each cubic centimeter contains 2 mg. of synthetic thyroxine-Roche.

Tablets Synthetic Thyroxine-Roche, 1 mg.

Synthetic thyroxine is a white or slightly yellow, needle-like, odorless, crystalline powder.

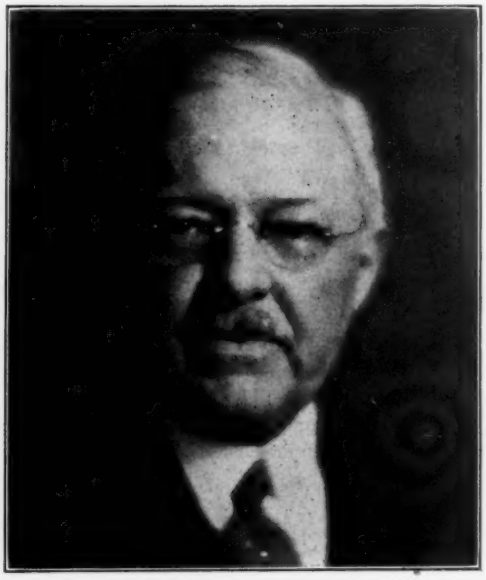
It is insoluble in water and practically insoluble in alcohol or the other more common organic solvents, but in the presence of mineral acids it dissolves in alcohol, is soluble in solutions of the alkali hydroxides, and on saturation with sodium chloride the sodium salt of thyroxine separates. Synthetic thyroxine melts with decomposition between 225 and 228 C.

Transfer about 0.1 Gm. of synthetic thyroxine to a small hard glass test-tube containing a piece of sodium about the size of a pea, previously melted; after the first violent action has ceased, the tube and contents are heated until decomposed: vapors of iodine are evolved; the tube and contents are allowed to cool; add 10 cc. of water; the mixture is boiled for a few minutes; filter through paper and divide into two portions. To one portion add a few drops of sodium hydroxide solution followed by the addition of a few drops of freshly prepared ferrous sulphate solution and finally a few drops of ferric chloride solution and, after agitation, carefully add diluted hydrochloric acid until the iron hydroxides just dissolve: a very finely divided blue precipitate results; to the other portion add 1 cc. of concentrated nitric acid, boil, cool and add 1 cc. of silver nitrate solution: a curdy yellow precipitate results, insoluble in a large excess of stronger ammonia water. Add about 0.01 Gm. of synthetic thyroxine to 1 cc. of a one per cent solution of triketohydrindene-hydrate (*Ninhydrin*) solution and boil for one minute: a blue color results.

Place about 0.03 Gm. of synthetic thyroxine in a 50-cc. glass-stoppered cylinder, add 30 cc. of water, shake the contents for five minutes, filter through paper: separate portions of 2 cc. each of the filtrate yield, no opalescence with 0.5 cc. of diluted nitric acid

and 0.5 cc. of silver nitrate solution (*soluble halides*); no turbidity with 0.5 cc. of diluted nitric acid and 0.5 cc. of barium nitrate solution (*sulphates*); no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*).

Incinerate about 0.05 Gm. of synthetic thyroxine, accurately weighed: the residue is negligible. Dry about 0.05 Gm., accurately weighed, for 24 hours over sulphuric acid in a partial vacuum: the loss in weight should not exceed 1 per cent. Transfer about 0.1 Gm., previously dried for 24 hours over sulphuric acid, accurately weighed, to a bomb tube; determine the iodine content by the Carius method: the amount of iodine found should not be less than 65 per cent, nor more than 66.5 per cent.—*Jour. A. M. A.*, Aug. 16, 1930.



DR. W. A. BASTEDO.
President, U. S. Pharmacopœial Convention.

PERSONAL AND NEWS ITEMS.

Announcement of a gift of $100,000 to the recently created National Institute of Health by the Chemical Foundation, Incorporated, is made in correspondence presented June 23rd for printing in the Congressional Record by Senator Jos. E. Ransdall of Louisiana. The AMERICAN PHARMACEUTICAL ASSOCIATION supported the Bill referred to.

The Scientific Monthly, of June, contains an article on "Light and Medicines," by our fellow member, **H. V. Arny.**

Josiah K. Lilly was named honorary president of the Alumni Association of the Philadelphia College of Pharmacy and Science for 1930–1931. He is an alumnus of the class of 1882. This is the first time the honor has been conferred by the Association.

C. O. Bigelow celebrated the 50th anniversary of the establishment of his pharmacy in New York City. The two millionth prescription was filled by the pharmacy on June 12th.

On the occasion of the two hundredth anniversary of the discovery of glycerin the News Edition of *Industrial and Engineering Chemistry* sketches the life of Wm. J. M. Gordon. The latter was a former president of the AMERICAN PHARMACEUTICAL ASSOCIATION. He began his pharmaceutical activities in Baltimore, then removed to Cincinnati, where one of the young men in his employ was John Uri Lloyd. Here he began the manufacture of glycerin.

Our fellow member, in Mexico, **G. G. Colin**, is secretary of the Chemical Society of Mexico, *Revista Quimica* is the official organ of the Society.

DR. HUGH S. CUMMING.
Surgeon General, U. S. Public Health Service.

Our fellow member in China, **John Cameron**, contributed an article on "Our Profession in China To-Day." He reports also the formation of North China Pharmaceutical Society Evening School.

There are in Cuba some 1500 drug stores which when compared with the approximate population of 3,500,000 would make one store to every 2333 inhabitants.

According to Treasury Department statistics sales of prepared medicines and drugs in Cuba do not average more than $4,000,000 annually, but including crude products and goods generally sold in drug stores such as tooth paste and cosmetics, it is reckoned that sales approximate $12,000,000 per annum.

Courtesy of Washington Star.

E. M. Holt and E. B. . of the U. S. Public Health Service—the first commissioned pharmacists.—See page 907.

OBITUARY.

EDWARD WILLIAMS.

Edward Williams, Madison, Wis.—member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1906—died July 19th, following a long illness. He was born in Davies County, Ill., April 12, 1867. His parents moved to Hazel Green, Wis., where Edward received his early education; after graduation from High School, he taught school for several years and then entered the Pharmacy Department of the University of Wisconsin, graduating in the class of 1893. For a time Mr. Williams was employed with Dunning & Sumner and then purchased a drug store, with James O'Connor, as partner. He opened a second store which he later sold to Harlow S. Ott. About this time he erected the building in which he was engaged at the time of his death.

Mr. Williams was a member of the Wisconsin Board of Pharmacy for 25 years and 10 years its secretary. He was a member of the York Rite bodies of Masonry and a past master of Madison Lodge No. 5.

June 6, 1894, Mr. Williams married Hannah J. Wilkinson, of Benton, who survives him.

GEORGE W. SOHRBECK.

George W. Sohrbeck, member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1897, died June 2nd, aged 72 years, at his home in Moline, Ill. He was a graduate of the University of Illinois School of Pharmacy. Soon after graduating he entered into partnership with his brother, Henry Sohrbeck.

Mr. Sohrbeck was interested in educational matters and had been a member of the Moline school board. He was active in Masonic bodies. His widow, née Miss Nellie Mowry, survives the deceased.

Dr. W. H. Henshaw, former chief of the Biological Survey, U. S. Department of Agriculture, died in Washington, August 1st, aged 80 years.

SOCIETIES AND COLLEGES.

OMISSIONS.

The minutes of the Baltimore sessions have now been completed excepting those of the Conference of Pharmaceutical Law Enforcement Officials. Because of the printing of the minutes it has been necessary to omit some of the divisions of this Department in the recent issues of the JOURNAL, *but it is hoped these can be resumed in the next number of the* JOURNAL.

ALCOHOL ADVISERS OF THE COMMISSIONER OF PROHIBITION.

The following have been appointed alcohol advisers:

Frank A. Blair, New York, president of the Proprietary Association; R. R. Brown, president of the U. S. Industrial Alcohol Company, New York; H. S. Chatfield, New York, president of the National Paint, Oil and Varnish Association; Donald D. Conn, San Francisco, managing director of the California Vineyardists' Association; S. C. Henry, Chicago, secretary of the National Association of Retail Druggists; Harrison E. Howe, Washington, *Industrial and Engineering Chemistry;* Everett B. Hurlburt, chemist, South Glastonbury, Conn.; Martin H. Ittner, Jersey City, chairman of industrial alcohol committee of the American Chemical Society; C. Mahlon Kline, Philadelphia; Frank M. Noonan, of Boston; Charles L. Reese, Wilmington, Del.; Fred S. Rogers, Middletown, N. Y.; A. Homer Smith, Philadelphia; Willoughby M. McCormick, Baltimore; Dr. William C. Woodward, Chicago, director of the bureau of legal medicine and legislation of the American Medical Association; Samuel L. Hilton, AMERICAN PHARMACEUTICAL ASSOCIATION.

ASSOCIATION MEETINGS.

State associations depend on the loyalty and support of individual membership. Educational standards have been advanced through association efforts and success in legislative matters result from well-directed coöperation; there must be recognition of common interests of manufacturers, wholesalers and retailers. That there is a growing realization of this thought is evidenced by the records of state and national associations, and is pointed to in the report of President H. C. Christensen, printed in the editorial section of this issue of the JOURNAL. His report will in some instances answer for the reports of the respective state meetings.

The fine spirit of coöperation of national associations was expressed in the addresses made at the Wisconsin meeting by representatives of these organizations. The addresses of President Roach, Secretary Henry and Chairman Riemenschneider, and Secretary Newcomb have carried the message of cooperation and that of President Christensen no less so. The writer may be permitted to express appreciation of the most cordial tribute by Secretary Henry relative to the work of the AMERICAN PHARMACEUTICAL ASSOCIATION. Former president of the A. PH. A., H. A. B. Dunning, has expressed his thoughts in saying, "Each of the national drug organizations has its own grave responsibilities and great problems and they should have our sympathetic coöperation on all general policies which come within the scope of our own activities."

The National Association of Retail Druggists will hold its annual meeting in Atlantic City, September 15th to 19th, and there is promise of a large attendance. The convention committee is developing a fine entertainment program and the officials of the N. A. R. D. are preparing for profitable and interesting business sessions. Many of those active in this body are represented in the work of the AMERICAN PHARMACEUTICAL ASSOCIATION and it is hoped that the annual convention will be a most successful one.

STATE ASSOCIATIONS.

Secretaries are requested to send in list of officers and correction of those given. Please address Journal A. Ph. A., 10 West Chase St., Baltimore, Md.

CONNECTICUT.

Officers elected at Eastern Point by Connecticut Pharmaceutical Association are: *President,* George L. Rapport, Hartford, *First Vice-President,* Hugh P. Beirne, New Haven; *Second Vice-President,* George F. Blackall, Bristol; *Secretary-Treasurer,* P. J. Garvin, New Haven.

ILLINOIS.

Secretary Day presented an historical paper before Illinois Pharmaceutical Association on its first fifty years of coöperative pharmaceutical service. He included a copy of the

original call for the formation of the Association, copies of the first proceedings, photographs of the early officers, programs, etc. President Archer gave a résumé of the State Association activities and spoke of problems before the body and pharmacists generally.

The following officers were elected for the ensuing year: *President*, F. E. Neupert, Danville; *First Vice-President*, Leo L. Mrazek, Chicago; *Second Vice-President*, George E. Parks, Anna; *Third Vice-President*, Carson H. Porter, Rockford; *Secretary*, William B. Day, Chicago; *Treasurer*, George M. Bennett, Urbana.

KENTUCKY.

The 59th annual meeting of Kentucky Pharmaceutical Association met at Crab Orchard, June 19th, with a large attendance. Among the principal topics the encouragement of larger use of U. S. P. and N. F. preparations received considerable attention, with the end in view of devising plans for making this effective.

The following were elected officers for the ensuing year: *President*, W. B. Poynter, Louisville; *Vice-President*, Wynn Davis, Glasgow; *Secretary*, J. W. Gayle, Frankfort; *Treasurer*, W. J. Johnson, Mayfield.

MASSACHUSETTS.

Massachusetts Pharmaceutical Association held its annual meeting at Swampscott, June 10th to 12th. The following officers were elected for the ensuing year: *President*, T. Willard Burke, Lynn; *First Vice-President*, Joseph Sisson, Boston; *Second Vice-President*, Charles F. Brow, Jr., Fall River; *Secretary*, Carl G. A. Harring, Newton Center; *Treasurer*, Lyman W. Griffin, Allston.

MISSISSIPPI.

The 47th annual meeting of Mississippi Pharmaceutical Association was held at Vicksburg, June 17th and 18th. All the officers were elected for the ensuing year; the 1931 meeting is to be held at Biloxi.

A. S. Coody, of Jackson is the secretary. Charles E. Wilson, of Corinth, reëlected president, was one of the representatives of the A. PH. A., at the Tennessee meeting.

MISSOURI.

Missouri Pharmaceutical Association held an interesting annual meeting. Robert L. Lund spoke on the St. Louis Survey of the Drug Business. Congressman John J. Cochran addressed the meeting. William Mittelbach was given a testimonial fund in honor of his 30 years' service as treasurer of the Association. The following officers were elected for the ensuing year: *President*, H. R. Speckart; *Vice-Presidents*, J. L. Rosse, C. M. Pfalzgraf and B. Spaeth; *Treasurer*, William Mittelbach; *Assistant Treasurer*, M. Q. Williams; *Secretary*, W. H. Lamont; *Honorary President*, L. E. Fischer; Historian, Ambrose Mueller.

MONTANA.

The officers elected by Montana Pharmaceutical Association for the ensuing year are: *President*, S. O. Clinton, Butte; *First Vice-President*, J. F. Murray, Malta; *Second Vice-President*, P. C. Vornholt, Billings; *Third Vice-President*, J. J. Turner, Sidney; *Secretary*, J. A. Riedel, Boulder; *Treasurer*, G. A. Chaltman, Hobson. Helena was selected for the 1931 meeting.

Discussion of changes in the state pharmacy law and the need for an effective poison law were important items of the program.

Charles "Packy" McFarland, of Helena acted as toastmaster of the banquet, which was a delightful function.

NEW HAMPSHIRE.

New Hampshire Pharmaceutical Association reëlected its officers for the ensuing year. Among the speakers were former president Theodore J. Bradley of the A. PH. A., James F. Finneran, H. S. Noel of Indianapolis.

NORTH CAROLINA.

North Carolina Pharmaceutical Association celebrated its golden anniversary meeting at Raleigh, August 11th to 13th; here the association was organized. President H. C. Christensen of the AMERICAN PHARMACEUTICAL ASSOCIATION was present and delivered an address in which he urged pharmacists to take a deeper interest in the A. PH. A., and in the practice of pharmacy. Secretary E. F. Kelly, attended for a day, as it was necessary for him to be present at a conference in Washington, on Tuesday. Clyde L. Eddy contributed to the interesting program.

Among the charter members present were: F. W. Hancock, of Oxford; E. V. Zoeller, of Tarboro; James R. Young, Raleigh; the latter is 84 years of age and is still actively

engaged in business; his father practiced pharmacy in Raleigh for 65 years. Hon. Josephus Daniels attended the meeting; the former secretary was engaged in the drug business for a number of years. Gilliam Griscom, federal collector of internal revenue, and a former druggist spoke in most complimentary terms of the state druggists, stressing their observance of laws bearing on his department.

President Fordham defined the ethics of the profession and emphasized the purpose of the organization in protecting health and serving the public.

The officers of North Carolina Pharmaceutical Association are elected by mail ballot.

OHIO.

The meeting of Ohio Pharmaceutical Association was held on board S. S. Juniata on a cruise through Lakes Erie, St. Clair and Huron. This cruise proved so interesting that it is contemplated to hold next year's convention on a trip through the Welland canal through Lake Ontario and up the St. Lawrence.

The following officers were elected for the ensuing year: *President*, William Ludwig, Toledo; *First Vice-President*, John Darr, Girard; *Second Vice-President*, Anthony B. Ejbl, Cleveland; *Treasurer*, L. W. Funk, Columbus; *Secretary*, Theo. D. Wetterstroem, Columbus; *Member of Council*, John Rutledge, Akron. The delegates to the AMERICAN PHARMACEUTICAL ASSOCIATION in 1931 are: M. N. Ford, Frank Freericks and Ferd King.

OREGON.

Oregon Pharmaceutical Association held its annual meeting at Seaside, July 7th to 9th. The following officers were elected: *President*, John Witty, Portland; *First Vice-President*, George Steelhammer, Silverton; *Second Vice-President*, Harold Weiss, Portland; *Secretary*, Frank S. Ward, Portland; *Treasurer*, John M. Lane, Portland.

President H. C. Christensen of the A. PH. A. and Secretary E. L. Newcomb of the N. W. D. A. were present. It was decided to arrange, if possible to have the Western States hold meetings consecutively so as to induce visitors to attend a number of these associations without too much loss of time.

SOUTH CAROLINA.

At the 54th annual meeting of South Carolina Pharmaceutical Association the following officers were elected: *President*, Carl M. Gibson, Columbia; *First Vice-President* C. E. Powe, Hartsville; *Second Vice-President*, Frank Keller, Clinton; *Secretary-Treasurer*, Frank M. Smith, Charleston.

The retiring President, Herbert F. Dunning, stressed the importance of coöperation and interest in legislative affairs. Among the speakers of the convention were Turner F. Currens, New York, and Congressman A. H. Gasque.

SOUTH DAKOTA.

South Dakota Pharmaceutical Association held its 44th annual meeting at Sioux Falls, June 17th to 19th. The following officers were elected: *President*, Roy Doherty, Rapid City; *Vice-President*, Otto J. Tommerasson, Brookings; *Secretary*, Rowland Jones, Gettysburgh; *Treasurer*, F. S. Bockoven, Clark.

Madison was selected for the 1931 meeting.

TENNESSEE.

The *Southeastern Drug Journal* reports that the formation of a new inner unit of the state organization, to be known as the Tennessee Active Druggists' Association, which group will work with the state body featured the forty-fifth annual convention of the Tennessee Pharmaceutial Association held in Knoxville, July 15th, 16th and 17th. The new group was organized in the first closed session ever held by the Tennessee Pharmaceutical Association and its function, together with the accomplishments of a full-time field manager, will be of untold benefit to pharmacists in the state, it is predicted.

Outstanding among the interesting addresses made at the convention was that of President Thomas Roach of Oklahoma City, Okla., of the National Association of Retail Druggists, who was a special guest of honor at the meeting.

C. R. Heinrich of Knoxville was elected to the presidency of the association in the final business session of the convention. Other officers elected at the same time include John Sheehan of Memphis, *First Vice-President;* George Fillauer of Chattanooga, *Second Vice-President;* L. D. Mitchell of Nashville *Third Vice-President;* William P. Winter of Nashville, *Secretary* and William Sewell, Jr., of Nashville, *Treasurer*. J. Henry White of Jackson was named as a member of the Board of Pharmacy.

Memphis was selected as the meeting place for the 1931 meeting of the Association.

WISCONSIN.

Wisconsin Pharmaceutical Association celebrated its Golden Anniversary at Madison, July 15th to 18th. It was here that fifty years ago the Association was organized. The meeting was largely attended, probably the largest in its history, and presided over by Dr. Edward Kremers of Madison.

Madison is beautifully located and offers a great deal of interest for pharmacists because the School of Pharmacy is located here; also, the Pharmaceutical Experiment Station, and much that relates to early Wisconsin pharmacy has a part in the museum of the Wisconsin Historical Society. The most interesting is an historical drug store made up of contributions from a number of the early apothecary shops of Wisconsin. While furniture, apparatus, etc., are from quite a number of establishments the arrangement is such that it presents an apothecary shop of fifty or more years ago. In it are preserved a great many things that associate the earlier pharmacies with the present. The visitors also had an opportunity to see the Pharmaceutical Garden and Experiment Station.

At the home of Dr. and Mrs. Kremers, the members and visitors were entertained with a picnic supper and enjoyed the charming surrounding scenery. There were many entertainments, all of them enjoyable, including besides those mentioned, receptions, bridge parties, dances, luncheons, auto drives, etc.

The program of the convention was well prepared. Representatives were present from various state and national associations, and members of the faculties and officials of the University contributed to the program, among them President Glenn Frank, Dr. J. Schafer and C. E. Brown of the Wisconsin Historical Society.

Among the state associations represented were Wisconsin Medical Society, the state pharmaceutical associations of Illinois, Maryland, Minnesota, Iowa and Michigan. Among the national associations represented were the National Wholesale Druggists' Association, National Association of Retail Druggists and the AMERICAN PHARMACEUTICAL ASSOCIATION.

President Edward Kremers, in his address, reviewed the history of the Wisconsin Pharmaceutical Association, the development of pharmacy in Wisconsin and of the United States.

The principal address of the meeting was made by Dr. James H. Beal, who dealt with the subject of "Organization." As a result a prize fund was established for the encouragement of discussions on the subject.

Secretary Henry gave an account of the activities of the National Association of Retail Druggists, and in his remarks referred to the fine coöperation which exists between that body and the AMERICAN PHARMACEUTICAL ASSOCIATION. He also stressed the importance of pharmacy as a foundation of the drug business. Chairman Julius Riemenschneider also spoke for the N. A. R. D. and referred particularly to its legislative activities.

Secretary E. L. Newcomb spoke for the National Wholesale Druggists' Association, and referred at length to the research being conducted by that organization and the plans for the Pharmacy Week of 1930. Secretary J. W. Slocum brought greetings from Iowa.

Members and visitors at Wisconsin meeting. Left to right—Samuel C. Henry, Edward Kremers, Julius Riemenschneider, Charles Avery, H. C. Christensen, E. L. Newcomb, E. G. Eberle, Ernest Kremers.

E. G. Eberle had as his subject "The AMERICAN PHARMACEUTICAL ASSOCIATION." President H. C. Christensen supplemented his remarks and extended greetings.

The banquet was a splendid affair; William M. Rheineck presided as toastmaster, and was ably assisted by "Count Linnaeus." Brief remarks were made by James H. Beal, Charles H. Avery, Edward Kremers, Edward Menges, E. B. Heimstreet, E. G. Raeuber, H. C. Christensen, Samuel C. Henry, E. G. Eberle, representatives of the Ladies' and Travelers' Auxiliaries. The report of necessity is very incomplete; a general statement that the meeting was a notable success will have to make up in part for the briefness and omissions.

The following were elected officers of the Association:

President, Clarence Andrae Adams; *First*

Vice-President, A. F. Menges, Madison; *Second Vice-President*, George Miller, Cadott; *Third Vice-President*, Otis George, Sparta; *Treasurer*, H. F. Wussow, Wauwatosa; *Secretary*, Ralph W. Clark, Madison.

WYOMING.

Charles J. Clayton was one of the principal speakers of the Wyoming Pharmaceutical Association meeting, his subject being the Capper-Kelly Bill; he also presented a paper on the manufacture of galenicals by retail pharmacists. President F. W. Rendle gave an interesting account of association activities in which he reported the development of the Wyoming Association. The resolutions of the AMERICAN PHARMACEUTICAL ASSOCIATION were approved; the Association also approved the sending out of an inspector by the Board of Pharmacy; also, the celebration of the Washington Bicentennial.

The following officers were elected: *President*, Dale Kilburn, Casper; *First Vice-President*, Harry Prahl; *Second Vice-President*, J. L. Conway; *Secretary-Treasurer*, John Tripenny, Casper. Rock Springs was elected for the next annual meeting.

(*To be continued*)

CHICAGO VETERAN DRUGGISTS' ASSOCIATION.

The Chicago Veteran Druggists' Association celebrated Jamieson Day on June 19th. Honorary President John Blocki was the recipient of birthday honors, it being his 85th birthday. The secretaries were reëlected for the ensuing year, namely: Wilhelm Bodemann, Theophilus Schmid and E. von Hermann. The new president is Richard Voge; Leon L. Mrazek is the vice-president; L. P. Larsen is "Parson;" George V. Haering, news reporter; Julius H. Riemenschneider, serves as sergeant-at-arms.

OFFICERS OF THE BRITISH PHARMACEUTICAL SOCIETY.

A. R. Melhuist is the new president of the British Pharmaceutical Society and British Pharmaceutical Conference.

F. J. Hines succeeds Mr. Melhuist as Vice-President of the Society. The new Treasurer is J. Keall; the Secretary and Registrar, the Resident Secretary in Scotland and the Editor of the *Pharmaceutical Journal* were all reappointed.

The Conference held its annual meeting in Cardiff, July 21st–25th. Chairman John Humphrey's address dealt with the development of British pharmacy; his optimism marked the address and expressed assurance that pharmacy "would come into its own."

In the Science Section more than twenty papers were read and discussed; three dealt with Chemistry, four related to Practical Pharmacy, seven with Pharmaceutical Chemistry, two with Electro-Chemistry, one with Pharmacology and five with miscellaneous subjects of indirect pharmaceutical interest. It is hoped to make further reference of the meeting in a succeeding issue of the JOURNAL.

DR. HERMANN THOMS HONORED.

A memorial placque in bronze, honoring Emeritus Professor Dr. Hermann Thoms, has been placed in the Pharmaceutical Institute of the University of Berlin. Dr. Thoms will be remembered by pharmacists of the United States, as he visited here several years ago on his trip around the world; few, if any have contributed more to German pharmaceutical education and literature than Dr. Thoms.

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The meeting of the British Association will be held at Bristol from September 3rd to 10th. The botanical section's addresses are above the usual number, due, perhaps, to the fact that Prof. F. O. Bower is the president.

The meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION will be held in Miami, Fla., during week of July 28, 1931.